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THE COMPENSATION OF VICTIMS OF ENVIRONMENTAL OFFENCES IN CANADA

BY

PATRICK JOSEPH BARRETT ©

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfilment of the requirements for the degree of **MASTER OF LAWS**

DEPARTMENT OF LAW

Edmonton, Alberta

Fall 1994

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Professor Elaine Hughes

David R. Percy

Professor David Percy

Ian Urquhart

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ABSTRACT

The present study is designed to examine the problem of compensating people in Canada who are injured, or suffer sickness and disease, from exposure to environmental health hazards created as the result of an environmental offence. It begins by reviewing some of the practices that create environmental pollution and the consequent real and potential dangers posed to human health.

People suffering illness or disease as a result of being subjected to environmental pollution undergo a form of assault upon their person, in most cases unwillingly and unwittingly, thus inadvertently achieving the status of "victims". In an attempt to discover their basic characteristics as a class of individuals, victims are examined from a sociological perspective, and also historically from within the criminal justice system. It is argued that the pollution victim shares many similarities with victims of more "traditional" crimes against the person and that an affirmative approach to compensation of these victims is, therefore, justified.

The current methods of compensation are examined and shown to be poorly designed to meet the needs of pollution victims. The deficiencies and difficulties of tort procedure are highlighted. Other potential remedies, such as restitution and crimes compensation, are also examined and found wanting. Proposed U.S. and Canadian schemes of

compensation are reviewed, as well as the Japanese method of addressing the problem. The positive as well as the negative aspects of these schemes are presented in an attempt to obtain an objective overview.

It is concluded that a consolidated method of compensating victims of environmental offences should be devised. The proposed method could form the basis for legislation at the Provincial or Federal levels, since there is no Canadian statute that deals exclusively with such victims. This could be done by utilizing the more feasible concepts of the U.S.A. and Canadian proposals, and existing Japanese legislation. Some of these ideas are, therefore, suggested for inclusion in a draft statute that would be designed specifically to provide a better system of compensation for environmental offence victims in Canada.

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Chapter 1

ENVIRONMENTAL CRIMES AND THE POTENTIAL IN CANADA FOR CREATING VICTIMS

Introduction

Relatively recent provincial and federal environmental legislation in Canada, such as the Canadian Environmental Protection Act (C.E.P.A.), imposes severe criminal sanctions against environmental offenders for certain offences[1].

---

[1] Canadian Environmental Protection Act, R.S.C. 1985, c 16 (4th Supp.) [Hereinafter C.E.P.A.] Proclaimed in 1988, consolidated the following federal statutes; The Environmental Contaminants Act, The Canada Water Act, The Clean Air Act, The Ocean Dumping Control Act, and some sections of The Department of Environment Act. Severe criminal-type penalties are contained in many provincial and federal environmental statutes. For example, in C.E.P.A., ss.114 &115 read as follows:

s.114 Fraud- Every person who knowingly
(a) provides the Minister with any false or misleading information results or samples in purported compliance with section 16,26 or 27, paragraph 29(1) (c) or a notice under paragraph 18(1)(b) or (b) provides the Minister with any false or misleading information in purported compliance with section 17 or a notice under paragraph 18(1)(a),
is guilty of an offence and is liable
(c) on summary conviction, to a fine not exceeding three hundred thousand dollars or to imprisonment for a term not exceeding six months or to both, or
(d) on indictment, to a fine not exceeding one million dollars or to imprisonment for a term not exceeding five years, or to both.

s.115 (1) Damage to environment and death or harm to persons. - Every person who, in contravention of this Act,
(a) intentionally or recklessly causes a disaster that results in a loss of the use of the environment, or
(b) shows wanton and reckless disregard for the lives or safety of other persons and thereby causes a risk of death or harm to another person,
is guilty of an indictable offence and is liable to a fine or to imprisonment not exceeding five years , or to both.
(2) Criminal negligence.- Every person who, in contravention of this Act, shows wanton or reckless disregard for the lives or safety of other persons and thereby causes death or bodily harm to another person is subject to prosecution and punishment under section 203 or 204 of Criminal Code.

Substantial fines and jail sentences have become part of the legislative arsenal of weapons to fight pollution.[2] It is possible that people may suffer personal injury, disease, or sickness from exposure to toxic substances, including those that have been criminally discarded or introduced from various sources into the air, land and water. In other words, people may directly or indirectly become victims of what are, in effect, environmental crimes against the person.

The main premise of this thesis is that, despite the imposition of heavy criminal sanctions, the present methods of compensating these victims must be improved. The study will show that their present remedies and avenues of recourse for restitution and compensation are quite limited, and for the most part unsatisfactory. In order to demonstrate this premise, it first must be shown that past and present Canadian pollution practices do, in fact, have the potential to create victims of environmental crime.

---

[2] Examples of severe monetary penalties and corporate officer liability are contained in the following sections of C.E.P.A.:

s. 116. Other offences.- Every person who contravenes any provision of this Act, ...or any regulation made under this Act is guilty of an offence punishable on summary conviction and is liable to a fine not exceeding two hundred thousand dollars or to imprisonment for a term not exceeding six months, or to both.

s. 122. Liability of others.- Where a corporation commits an offence under this Act, any officer, director or agent of the corporation who directed, authorized, assented to, acquiesced in or participated in the commission of the offence is a party to and guilty of the offence, and is liable to the punishment provided for the offence, whether or not the corporation has been prosecuted or convicted.
Certain sections of the Criminal Code of Canada,(R.S.C. 1985, c.C-46), have potential for use in the prosecution of environmental offences. These are referred to in Chapter 2 of this study.

To address this preliminary issue, a brief overview is presented of past and ongoing pollution[3] of air, water, and land, as well as the danger posed by toxic and hazardous waste disposal sites in Canada. It is also necessary to show that there is a link between the contaminants whose release is controlled by legislation and danger to human health.

Not all dangerous pollutants have been regulated under C.E.P.A[4]. Many are controlled by other legislation, such as the Pest Control Products Act,[5] or the Environmental

---

[3] A.B. Potter, Pollution, A Study in Survival,(Dorval: Palm Publishers, 1973), at 14. "The word pollution implies specifically that a natural or man-made occurrence is harmful to the environment."

[4] Schedule I of C.E.P.A. contains a list of toxic substances; Regulations with respect to these substances and some others that have been passed at the time of writing, include the following; Asbestos Mines and Mills Release Regulations (SOR/90-341); Chlor-Alkali Mercury Release Regulations (SOR/90-130); Chlorobiphenyls Regulations, (SOR/91-152) ; Chloroflurocarbon Regulations, 1989(SOR/90-127);Contaminated Fuel Regulations(SOR/91-486); Federal Mobile PCB Treatment and Destruction Regulations,(SOR/90-5); Gasoline Regulations(SOR/90-247); Mirex Regulations (SOR/90-126); Ocean Dumping Regulations (SOR/89-500); Ozone-Depleting Substances Regulations No 1.(Chloroflurocarbon) (SOR/89-351); Vinyl Chloride Release Regulations(SOR/90-125); Secondary Lead Smelter Release Regulations(SOR/91-155); Phosphorous Concentration Regulations (SOR/89-501);Polybrominated Biphenyls Regulations(SOR/90-129);Polychlorinated Terphenyls Regulations, 1989(SOR/90-128); Pulp and Paper Mill Defoamer and Wood Chip Regulations (SOR/92-268);Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations(SOR/92-267).

[5] Pest Control Products Act R.S.C. 1985, c P-10.

Contaminants Act[6], and some are controlled by provincial legislation[7]. For the purpose of emphasizing the urgency of the dangers of pollution, pollutants that are, or could be regulated under such statutes are examined. (Some of the regulated pollutants are briefly considered as to their nature and potential to create human health hazards, in Appendices "A" and "B").

Additionally, the connection that legislated pollutants[8] might have with potential and real dangers to

---

[6] Environmental Contaminants Act, R.S.C. 1985, c E-12. The preamble to this act states that it is an "Act to protect human health and the environment from substances that contaminate the environment". Under s.17, it provides for a Schedule controlling the release of different substances. The penalty section reads:

s. 24 (1) Every person who contravenes section 17 is guilty of an offence and liable

(a) on summary conviction, to a fine not exceeding one hundred thousand dollars,or

(b) on conviction on indictment to imprisonment for a term not exceeding two years.

[7] See for example the Alberta Environmental Protection and Enhancement Act, R.S.A. 1992, E.13.3

[8] For the purposes of this study, it is proposed to consider pollutants that are or could be encompassed by provincial statutes and regulations (see,infra note 50) as well as the Toxic Substances sections of the Canada Environmental Protection Act, R.S.C. 1985, c.16(4th Supp.) and the regulations thereunder. For example s.11 of C.E.P.A. reads:

Toxic substances.- For the purposes of this Part, a substance is toxic if it is entering or may enter the environment in a quantity or concentration or under conditions
(a) having or that may have an immediate or long-term harmful effect on the environment;
(b) constituting or that may constitute a danger to the environment on which human life depends;or
(c) constituting or that may constitute a danger in Canada to human life or health

human health[9] must be discovered, since illegal discharges of excessive amounts of such pollutants are the essence of the criminal offences under C.E.P.A.[10] and similar statutes. To do this, incidents of pollution and health hazards connected with legislated toxic substances or contaminants are examined.

It is not suggested that industry and large corporations are deliberately flaunting the law, with no concern for the outcome of their environmental behaviour. Rather, this chapter investigates the past and present state of the environment and the possibility that victims may be created in the future, as a result of the criminal violation of pollution discharge limits in environmental statutes.

The results of the investigation into these areas should indicate whether pollution practices in Canada are

---

Section 34 reads: (1) Regulations.-...... the Governor in Council may, on the recommendation of the Ministers and after the federal-provincial advisory committee is given an opportunity to provide its advice....make regulations....for imposing requirements respecting
(a) the quantity or concentration of the substance that may be released into the environment.....
(h) the quantities or concentrations in which the substance may be used.

[9] Environmental Law & Practice, Volume I(Toronto: Canadian Institute, 1988)C-5. A Decima Poll conducted in the fall of 1987 reported environmental concerns among Canadians are centred on two major items- health concerns as a result of toxins in the environment, and drinking water quality.

[10] See C.E.P.A. supra, note 1, s. 34 the regulatory section which controls the amounts of prohibited substances that may be released into the environment.

indeed creating a situation fraught with danger to human health,[11] with the ultimate potential for creating victims of environmental crimes. These preliminary areas having been examined and considered, the study will thereafter turn its attention to the main premise as to why such victims deserve compensation, and how this might be best accomplished.

Overview from 1960s to the present time: Pollution of air, water and land in Canada.

The purpose of this overview is to point out the urgency of the problem of pollution in Canada, and to demonstrate the increasing awareness by the provincial and federal governments of the public's concern, both as to the condition of the environment[12] and the potential human health hazards that have been or are being created. Some of the government measures taken since the 1960's, attempting to control pollution at the source by limiting discharge levels of hazardous substances, are highlighted. Additionally, the nature of the contaminants themselves is examined to obtain perspective on the risk each poses to human health, particularly if exposure levels exceed the legislated standards.

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[11] In 1989, more than 10,000 waste disposal sites were identified in Canada, about 1,000 of these being of "high" concern. See Health and Welfare Canada, A Vital Link, (Ottawa, Health and Welfare Canada, 1992) at p.96. For proposed and existing Canadian legislation see; J.Russell and W.J. Andrews, British Columbia Pollution Prevention and Clean-Up Act, (1990), Draft Statute for Discussion, By the West Coast Environmental Law Research Foundation, Vancouver, B.C., and the Alberta Environmental Protection and Enhancement Act, R.S.A. 1992 E.13.3; The Province of Quebec passed the Environmental Quality Act S.Q. 1990, CF.26. (in force June 22 1990).

That such contamination exists, and continues to proliferate, is evidenced by numerous governmental attempts at both the provincial and federal levels in Canada, and the state and federal levels in the U.S.A., to control the degree of pollution. For example, the number of contaminated and potentially toxic sites in both Canada and the U.S.A. is alarming, (180,000 in the U.S.A., by E.P.A. estimates in 1982). See, E.P.A. Surface Impoundment Assessment: National Report, 1982), prompting the U.S.A. to pass legislation in the 1980's and eliciting proposed and enacted legislation in some Canadian provinces; For example, See the Comprehensive Environmental Response and Liability Act, (C.E.R.C.L.A.) 1980 42 U.S.C. 9601-9679, and the Superfund Amendment and Reauthorization Act, (S.A.R.R.A.) Pub. Law No.99-499, 100 Stat.1613 (1986).

It is necessary to cover this ground to answer the preliminary question of whether the potential exists to create a new type of victim of crime. Examples are used from other jurisdictions, where there is no current Canadian study, to illustrate the inherent danger of a particular contaminant, or to otherwise emphasize the hazards of certain polluting practices. Although general in its approach, the overview is meant to provide an insight into potential environmental health hazards posed by contaminants regulated under the C.E.P.A. and other Canadian federal and provincial statutes.

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[12] For the purposes of this study "environment" shall have the same meaning as its definition in Section 3.(1) of C.E.P.A. which reads:

Definitions.- In this Act,

"environment" means the components of the Earth and includes
(a) air, land and water,

(b) all layers of the atmosphere,

(c) all organic and inorganic matter and living organisms, and

(d) the interacting natural systems that include components referred to in paragraphs (a) to (c);

One must, therefore, examine some of the most common ways in which people may receive environmental injuries or suffer environmentally related illness, whether from exposure to contaminated air, polluted water or toxic waste.[13] In recent years, "toxic real estate" has become a matter of great concern in North America because of the dangers it poses to human health.[14] The history of the pollution of these elements of the environment, leading to the current situation, has been summarized by one writer in the following terms:

> For decades American industry has generated and discarded hazardous wastes, including flammables, explosives, nuclear and petroleum fuel by-products, germ-laden refuse from hospitals and laboratories, toxic metals, such as mercury or lead, and dozens of synthetic chemical compounds including DDT, PCB's and dioxins.... Eventually, hazardous wastes infuse lakes and streams, underground waters, soil, and air, and

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[13] G.Z. Nothstein, Toxic Torts: Litigation of Hazardous Substances, (Colorado: Shepards- McGraw, 1984), p.29.

[14] W.Braul, Toxic Real Estate in British Columbia; Liability ed. A. Hillyer, (Vancouver:West Coast Environmental Law Research Foundation,1990), p. 14." Real estate comprising land and buildings is "toxic" if it is contaminated with substances that pose a significant threat to natural ecosystems or to human health and well being"; see also, P.Kelly, (1984) 76 Marquette Law Rev. 691 at 692, quoting Samuel Epstein, " The Toxic Waste Crisis", Newsweek, Mar. 7th. 1983 at 20.".... the potential dangers toxic waste pose to the country's land, water, air, public health and economy are second only to the threat of nuclear war."

> from there come into contact with unprotected **victims.**[15]

The task of obtaining general information about the condition of the environment is made relatively easy in Canada, since it is reviewed at periodic intervals by the Federal Government. The most recent survey was published in 1991, and specific sections of the report were devoted to air, water, and soil pollution.[16] Over the last thirty years, the public's attitude to environmental pollution has been connected in many ways to its concerns regarding human health, and the possibility of either the present generation or its children becoming victims of environmental health hazards. [17] Ongoing pollution practices (including those of municipalities and industry) combined with government policy, indicate that such concerns may well be justified.[18]

Beginning in 1962, with the publication of Silent Spring,[19] health issues associated with environmental pollution,[20] moved from the periphery to the centre of politics in most industrialized nations.[21] In Canada, many pollution control statutes were directed at controlling the release and disposal of pollutants after they had been created.[22] Public concern focused on the dangers of such pesticides as DDT and other industrial pesticides. It was also the time when there was a good deal of concern about the dangers to human health of radioactive fallout. An indication of the public's rising interest is reflected in the number of non-profit organizations already formed by the early 1970's to fight against "pollution" of the air, water and land.[23] These three elements of the environment are now examined: first, from an overview of the practices and approaches of government for the period beginning from the mid 1960's up to the present; and second, from the perspective of the potential danger to human health posed if part of the environment is contaminated by certain major pollutants.

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[15] "Developments in the Law of Toxic Waste Litigation," [1986] 99 Harvard Law Rev. 1458 at 1462.(emphasis added).

[16] The State of Canada's Environment, (Ottawa: Supplies and Services Canada, 1991), See especially, Chapters, 2,3,5 & 21.

[17] Public Opinion and the Environment (Ottawa: Environment Canada, 1988)

[18] D. Macdonald, The Politics of Pollution, Why Canadians Are Failing Their Environment (Toronto: McClelland & Stewart Inc. 1991) p.194.

[19] Rachel Carson, Silent Spring (New York:Houghton Mifflin 1962).

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[20] Potter, supra, note 3 at p 14 " The word **pollution** implies specifically that a natural or man-made occurrence is harmful to the environment".(emphasis added).

[21] Macdonald, supra, note 18 at p.7

[22] For an in-depth examination see: D.P. Emond, Environmental Law and Policy: A Retrospective Examination of the Canadian Experience," in Consumer Protection, Environmental Law and Corporate Power, Ivan Bernier and Andree Lajoi eds.(Toronto: University of Toronto Press, 1985) pp.117-124.

[23] Index to Canadian Citizen's Environmental Organizations (Ottawa: Environment Canada, 1973). As of January 1973, there were approximately 113 "Pollution" groups across Canada.

A: Air Pollution: [24]

(a) Canadian practices & approach

Some of the main contributors to air pollution in Canada include: activities related to the production of energy, industrial production of chemicals and minerals, the manufacture and use of consumer products, agriculture and forestry practices and waste treatment and disposal. All of these activities may lead to air pollution problems, "because they are sources of toxic and common air pollutants."[25]

Another major air pollution concern in Canada arises out of the production of electricity. It is predicted that the use of coal as a source of electricity will double and nuclear-generated electricity will increase by 50-60%, between 1986 and the year 2005.[26] The latter method for creating electric power has the potential to create radioactivity in the air which could endanger human health.[27]

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[24] For the purposes of this study the terms air pollution and air contaminant, will have the same meaning as that accorded to them in the definition section of C.E.P.A. which reads as follows: Section 3. (1) Definitions.- In this Act,

"air contaminant" means any solid, liquid, gas or odour or a combination of any of them that, if emitted into the air, would create or contribute to the creation of air pollution;

"air pollution" means a condition of the air, arising wholly or partly from the presence therein of one or more air contaminants, that

(a) endangers the health, safety or welfare of persons,

(b) interferes with normal enjoyment of life or property,

(c) endangers the health of animal life, or

(d) causes damage to plant life or to property.

[25] J. Hilborn and M. Still, Canadian Perspectives on Air Pollution, in State of the Environment Report No. 90-1. p. 16 - 17.(Ottawa: Environment Canada, 1990).

The Vice-President of the Canadian subsidiary of the multi-national Swiss chemical corporation, CIBA-GIEGY, suggested in 1973 that every possible effort should be made to come to terms with air pollution, because it was "harmful".[28] The widespread attention gained by an air pollution disaster causing 4,000 deaths, recorded in London, England's 1952 fog crisis,[29] later prompted the provincial government of Ontario to take regulatory action against air pollution in 1967.[30]

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[26] Ibid.

[27] Ibid.

[28] Potter, supra, note 3 at p.57. He noted that humans breathe approximately 22,000 times per day. They could survive, on average, 6 weeks without food, and 3 days without water, but only 2 minutes without air. He concluded that, to protect the quality of our air was obviously one of the highest priorities socially, economically, and politically.

[29] For a discussion of the technical aspects of the infant science of air sampling at the time of the crisis, see M.J.Suess, K,Green & D.W. Reinisch eds. Ambient Air Pollutants from Industrial Sources: A Reference Handbook, (New York: World Health Organization Regional Office, 1985) p.55

[30] Robert C. Paehlke, Environmentalism and the Future of Progressive Politics (New Haven: Yale University Press, 1989),p. 29.

Between 1967 and 1970 there was a dramatic surge in public concern about air pollution. By 1970, for example, some 69% of Canadians in one national survey indicated that air pollution was a "very serious" problem.[31] In Toronto, Ontario, a daily air pollution index was implemented to show the amount of sulphur dioxide and particulates in the atmosphere. Any increase in the deterioration of air quality was seen by many as an increase in the risk to human health.[32]

In its 1969 report on the pollution of the environment in Canada, the Canadian Society of Zoologists concluded that 1969 could well become known as "Pollution Year".[33] Toxic chemicals, industrial wastes and air pollution,[34] became issues for governments to address in the form of legislation and the creation of new administrative agencies in the late 1960's and early 1970's.[35] In 1969 a committee consisting of provincial and federal authorities agreed to form a National Air Pollution Surveillance (NAPS) network, and establish a federal/provincial advisory committee on air quality.[36]

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[31] M.P. Brown, " Organizational Design as Policy Instrument; Environment Canada in the Canadian Bureaucracy." In Canadian Environmental Policy: Ecosystems, Politics and Process, ed. R. Boardman, (Toronto: Oxford University Press 1992), p. 203.

[32] B. Commoner, " Nature under Attack" in Issues For the Seventies, Environmental Quality, ed. N. Scheffer,(Toronto: McGraw-Hill,1971), p.10-11.

[33] M.J. Dunbar, Report of the Canadian Society of Zoologists The Rape of the Environment: A Statement on Environmental Pollution and Destruction in Canada (Montreal: McGill University, 1969) p.1. The Report cited the example of chemical companies that were producing new products, having no knowledge of the biochemical workings of the products, commenting that, "in a well-organized civilization, such behaviour would be classified as *criminal*"(emphasis added).

[34] The State of the Environment, (Paris: The Organization for Economic Co-operation and Development, 1991), p. 37. As early as 1974, science had made the connection between chlorine containing substances called chloroflurocarbons (CFCs), and the threat such chemicals posed to the depletion of the ozone layer. This discovery was one of the factors that brought about the signing of the Montreal Protocol(Protocol de Montreal relatif a

As of 1989, NAPS had about 130 stations monitoring air quality in over 50 Canadian urban centres. National objectives with respect to ambient air quality for the more common airborne contaminants, such as sulphur dioxide, particulates, nitrogen dioxide, carbon monoxide and ozone have been tracked using a three-tiered system.[37] The

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des substances qui appauvrissent la couche d'ozone: [Act final] Montreal, Quebec, Programmes des Nations Unies pour l'environnment 1987); wherein it was agreed by the signing nations, that each would reduce consumption of the controlled substances, CFCs and Halon, based on 1986 levels.

[35] Macdonald, supra, note 18 at 32

[36] State of the Environment Report for Canada, (Ottawa: Minister of the Environment, 1986),p.213. The Nation-wide Emissions Inventory of Air Contaminants for 1980 indicated that of the three contaminants,(sulphur dioxide, particulate matter, and hydrocarbons), industrial processes such as smelting and incineration contributed to 64%, 67%, and 28.9% respectively, of the total national emissions.

[37] M.Webb, The Canadian Environment, Data Book on Energy and Environmental Problems. (Toronto: W.B.Saunders Company Canada Limited, 1980) Table 6.1 at pp.132-133. Under the Clean Air Act Report of 1977-1978, data on the quality of air was provided showing three different levels of air quality. These were (i) the Maximum Desirable Level, which was the highest standard or goal for polluted areas of the country which should be achieved if possible in abatement of pollution programs; (ii) The Maximum Acceptable Level, was to provide protection against adverse

records of this organization show that from the years 1975 to 1990, there has been a decrease in all of the recorded air contaminants (with the exception of ground ozone) in relation to the maximum acceptable levels for the National Ambient Air Quality Objectives.[38] However, it is noted that other aspects of local air quality, such as nitrogen oxides and volatile organic compounds, have shown little or no improvement.[39] Although levels of the key pollutants show a general decrease across the nation, the air quality of cities has not improved. For example, the downward trend begun in 1984 of pollutants such as sulphur dioxide and nitrogen oxide, in the three major cities of Montreal, Hamilton, and Vancouver, stalled and started on an upward curve about 1987.[40] It is thus necessary to examine in more detail the health hazards that these major air contaminants pose to humans.

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effects of air pollutants on soil, water, vegetation, animals and personal well being. If this level was exceeded, then control actions should be commenced;(iii) The Maximum Tolerable Level, was an indicator that measures for abatement should be immediately begun, since at this level, air contaminants constituted a potential risk to human health.

[38] Health and Environment Canada, A Vital Link, (Ottawa: Minister of National Health and Welfare,1992), p. 49.

[39] Management Plan for Nitrogen Oxides,(Nix)and Volatile Organic Compounds, (Vocs) Publication No. CAME-EEC/TARE-E. (Winnipeg: Canadian Council Ministers of the Environment,1990). See also, T. M. Sterling, The Air Pollution Control Handbook, (Oshawa: Southam Environmental Group, 1990), p.9

[40] State of Canada's Environment, supra, note 16 at C.13-10.

Another source of concern is the efficacy of the methods used in some provinces to monitor the ambient air.[41] Alberta, for example, is the largest petrochemical producing area in Canada, and burns approximately 40% of all the coal consumed in the nation, but it has only 9 ambient air quality monitoring stations.[42] Based on data from a U.S. source it has been suggested, with some justification, that "a widespread air pollution problem could exist in Alberta and it would be extremely difficult to detect".[43] It is necessary, therefore, to examine in more detail the health hazards that major air contaminants may pose to humans.

(b) Potential Hazards to Human Health

What, if any, are the effects of air pollution[44] on human health? Are its effects serious enough to necessitate making crimes of corporate or personal environmental acts when, at certain levels and under certain circumstances, air pollution may exceed government imposed limits? One must examine the recent increase[45] of air pollution to understand the current Canadian legislative approach to this problem in C.E.P.A. and some provincial statutes.

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[41] A. Newton, An Examination of Alberta's Approach to Air Pollution Control, (Edmonton: Sunton Engineering, 1994) [Unpublished]

[42] Ibid. at p.1.0

[43] Ibid.at p.2.2. Newton points out that by contrast with Alberta, Ontario has established a comprehensive set of standards, guidelines and regulations and operates 97 continuous ambient are quality monitoring stations.

[44] M.J. Suess, K. Green & D.W. Reinisch, eds. Ambient Air Pollutants from Industrial Sources: A Reference Handbook, (New York: World Health Organization Regional Office,1985), p.55. Air pollution is not a modern phenomenon. Early historic references to it may be found for example, in the Odes of Horace, (65 B.C.), where he laments the fact that holy shrines are being blackened by smoke. The first recorded victim of air pollution by sulphur dioxides was Plinius the Elder. In 79 A.D. as admiral of the Roman fleet, in attempting to rescue people from an eruption of Mount Vesuvius in Italy, he collapsed on the beach after inhaling the toxic sulphur oxide fumes emitted by the volcano.

Different air pollutants may cause different adverse health effects, and combinations of pollutants may cause greater damage than individual compounds.[46] Effects that may be associated with air pollution consist of acute or short-term effects and chronic or long-term effects. Acute effects occur immediately or within a few days of exposure, while chronic effects may not become manifest for months or even years.[47] Some of the acute effects include an increased susceptibility among asthmatics to suffer an attack, respiratory infections such as influenza, bronchitis, pneumonia, and decreased lung capacity. Chronic effects may result in chronic bronchitis, emphysema, and lung cancer, although these diseases can have other causative factors.[48]

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[45] J.G. Harrar, " Hearings on the Environmental Quality Education Act, (H.R. 14753) before the House Select Subcommittee on Education", in Issues For the Seventies, ed. N. Scapha, (Toronto: McGraw-Hill, 1971) at p.9. " Over the last 200 years, human activity has played a significant role in atmospheric change, and industrialization has contributed greatly to bring about this change. Human outputs of carbon dioxide, sulphur and nitrogen oxides have upset the natural balance of these materials in the atmosphere and built up to harmful levels."

[46] Hillborn and Still, supra note 25, at p.19. The substances which pollute may be found in all three physical states of solids, liquids and gas.

[47] Ibid.

The chief air pollutants in Canada are: sulphur dioxide, nitrogen dioxide, ozone, carbon monoxide, and suspended particulate matter.[49] If they are released under certain conditions and in quantities that may represent a danger to human health, they can fall within statutory definitions of "toxic" or "hazardous" substances requiring control and regulation.[50] Their release into the air, if reckless or intentional, could therefore constitute a criminal offence.

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[48] Ibid.

[49] "Urbanization: Building Human Habitats," in The State of Canada's Environment, supra, note 16 at C. 13-9.

[50] While these substances are not specifically enumerated in C.E.P.A., s.11 of the statute reads: Toxic substances.- For the purposes of this Part, a substance is toxic if it is entering or may enter the environment in a quantity or concentration or under conditions....
(c) constituting or that may constitute a danger in Canada to human life or health.
See also, for example, the Alberta Environmental Protection and Enhancement Act,S.A. 1992,c.E-13.3 The Air Emissions Regulation, (Alta. Reg. 124/93), passed pursuant to the Act, contains in s.8 the maximum concentrations of particulates allowable in effluent streams.
See also, The State of Canada's Environment, supra, note 16 at C.2-11, Table 2.B2 "How Canada's national objectives regarding ambient air quality relate to health and environmental effects". In 1990, Environment Canada, by using studies conducted in Scandinavia and the U.S.A. linked some of the contaminants listed in appendix "A", and their potential to effect human health at each of the three levels of air quality.

The potential deleterious health effects of these pollutants include lung and brain damage.[51] Other health hazards encompass exacerbation of existing respiratory conditions, such as bronchitis and asthma, and damage to the central nervous system. Toxic air pollutants that are considered dangerous to breathe in even small quantities, have been termed base or criteria pollutants adverse to human health.[52]

The substances listed in Appendix "A" illustrate the necessity to regulate and control major air contaminants. Because of the serious health concerns that can be created, legislators felt it was justifiable to make it a criminal-type offence to intentionally or recklessly pollute the atmosphere with these substances. The potential to create innocent victims who may be exposed to such air pollutants is definitely something that merits a no-nonsense approach by government. In the same vein, it is next necessary to investigate the pollution of water in Canada by conducting a brief overview and study of the major water sources and their contaminants.

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[51] See, Appendix "A".

[52] Nothstein, supra, note 13 at 29; "Base air pollutants include, carbon monoxide, sulphur dioxide, petrochemical oxidants, nitrogen dioxide, hydro-carbons,atmospheric lead and ground level ozone". These types of pollutants have been designated as "criteria pollutants" in the U.S.A. The Environmental Protection Agency published a report in 1991, showing the latest estimates of national and regional emissions of some of these criteria pollutants. Their records cover a fifty years, from 1940-1990, and show that the air contaminants emitted into the atmosphere during that time period, included particulate matter, fine particulate matter, sulphur oxides, nitrogen oxides, volatile organic compounds, carbon monoxide and lead.

B. Water Pollution:

(a) Canadian practices and approach

The deterioration of water quality was one of the main areas of concern expressed by Canadians during public hearings held between September and December 1984 in connection with the Inquiry on Federal Water Policy.[53] However, the problem of polluted water[54] first attracted widespread attention even before the 1960's. A clear link had been established between water pollution and disease, especially in the form of typhoid fever.[55] Other water pollutants of concern included organochlorines, used as pesticides and in many industrial applications during the 1950's and 1960's, and phosphoric acid which was used for the making of fertilizers. When humans or animals were exposed to large doses of these chemicals by accidental means, the serious risk that they posed to human health became obvious.[56]

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[53] Hearing About Water: A Synthesis of Public Hearings of the Inquiry on Federal Water Policy, 1985 (Ottawa: Committee on Federal Water Policy, 1985), p.63.

[54] See, " Exxon Valdez Oil Spill", in The Almanac of Science and Technology, eds.Richard Golob and Eric Brus (New York: Harcourt Brace Javanovich, 1990), p.371. The term "water pollution" brings to mind such well publicized recent environmental disasters as the " Exxon Valdez" incident. In March of 1989, millions of tonnes of crude oil were spilled into the Prince William Sound, about 25 miles south of Valdez, Alaska, with ghastly consequences to marine life in the area.

[55] Bruce Mitchell, " The Provincial Domain in Environmental Management and Resource Development", in Resources and Environment ed. O.P. Dwiveely, (Toronto: McClelland & Stewart, 1980), p.50.

In linking water pollution to human health problems, and possible crimes against the person, potential victims need to be concerned about three major areas: first, the contamination of ground water; second, the pollution of natural surface water systems; and third, the quality of drinking water (which is supplied for human consumption by both these sources). A brief examination of these three potential sources of health hazards is now presented.

(b) Potential Hazards To Human Health

(i) Groundwater contamination:[57]

Freshwater represents only three per cent of all the water contained on the earth, the rest is contained in the oceans.[58] Of the freshwater, 2% is held in polar ice caps;

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[56] Commoner, supra, note 32 at 10. The "modern" environmental movement in the 1960's and 1970's began over well publicized reports on the alarming condition of the Great Lakes. There was a feeling of urgency, due to the fact that the organic content of surface waters was becoming extremely high. Lake Erie, for example, became a "Dead" lake in the early 1970's as a result of the rapid accumulation of phosphorous so that the central portion of the lake had zero oxygen.

[57] L. M. Ring and D. A. Thomas, " Groundwater Pollution Cases with Many Victims" (1991) Trial. 38. "Until recently, the subject of groundwater contamination had not been identified as a serious environmental problem since it was assumed that most impurities were absorbed by soil particles. Unfortunately, studies have shown that this is not the case."

[58] K. A. LaValle, " Ground Water Contamination: Removal of the Constraints Barring Recovery for Increased Risk and Fear of Future Disease", [1988], Detroit College of Law Review, 69; "Oceans cover 71% of the earth's surface and hold 93-97% of all earth's water".

in the U.S.A., 95% of the remaining fraction available for human use consists of groundwater,[59] while in Canada the volume of groundwater greatly exceeds the total amount of water contained in its rivers and lakes.[60] The primary source of most groundwater is precipitation which infiltrates into the soil. Up to 20% of the total precipitation that falls in a given area infiltrates into the ground, while the remainder drains into streams, lakes or oceans as runoff, or returns to the atmosphere by transpiration and evaporation.[61]

Approximately 50% of the population of the U.S.A. uses groundwater as its major source of drinking water,[62] as do one in every four Canadians.[63] It is therefore extremely important that this source[64] of drinking water be relatively pure and free from dangerous pollutants.[65] In Canada, wells have been polluted from Prince Edward Island to British Columbia from the absorption of agricultural pesticides.[66] Prince Edward Island relies solely on ground water for its drinking water needs, and it has been estimated that over 25% of the groundwater in that province is contaminated by aldicarb,[67] an extremely toxic pesticide considered to be a possible mutagen.[68]

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[59] J.Barbash and P.V.Roberts, "Volatile Chemical Contamination of Groundwater Resources in the U.S." (1986) 58 Journal of Water Pollution Control Fed. 343.

[60] State of Canada's Environment, supra, note 16 C.3-5.

[61] L. Leet, and S.Judson, Physical Geology 4th ed.(New Jersey: Prentice-Hall,1971), p. 266.

[62] M.Sun,"Groundwater Ills: Many Diagnosis, Few Remedies",(1986) 232 Science 1490. "Half the nation (referring to the U.S.A.) depends on groundwater, rather than lakes and rivers for potable water."

[63] State of Canada's Environment, supra, note 16 c. 3-1.

[64] LaValle, supra, note 59 at pp.94-95. The writers suggest that the extent of groundwater contamination in North America has the potential to become the next big environmental crisis facing the nation. Innocent people exposed to contaminated groundwater have in the past,"ingested some of the most dangerous substances known to man". This may overstate the situation somewhat, but the potential health hazard has to be a matter of concern for

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Canadians.

[65] E.Wood, et al., Groundwater Contamination from Hazardous Wastes, Princeton University Water Resources Program (New Jersey: Prentice-Hall, 1985) p.72. In 1985 the U.S.A. used over 100 billion gallons of groundwater. It is reported that groundwater contamination has occurred in every state in the U.S.A. and is "being detected with increasing frequency".

[66] M.Gillis, and D.Walker, Pesticides and Groundwater in the Atlantic Region (Dartmouth: Environment Canada, 1986).

[67] J.F. Castrelli and T.Vigod, Pesticides in Canada: An Examination of Federal Law and Policy (Ottawa:Law Reform Commission of Canada, 1987), p.52.

[68] M.Sittig, Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd ed. (Park Ridge: Noyes Publications, 1985), p.50; See also, W.H. Hallenbeck and K.M. Cunningham-Burns, Pesticides and Human Health, (New York: Springer Verlag, 1985), p.31. In addition, some underground storage tanks containing petroleum products and hazardous waste are leaking into ground aquifers,thereby contaminating them and creating a danger to public health. See also, A. Geraldine et al. Water 2020: Sustainable use of Water in the 21st Century, Report 40, (Ottawa: Science Council of Canada, 1988). The author notes that in the Province of New Brunswick, for example, five hundred wells have been contaminated by petroleum tanks since 1979. Once groundwater has been contaminated, the damage is very difficult to reverse and is extremely expensive. The author relates, for example, that between 1968 and 1972 the groundwater between the two Quebec towns of Mercier and Ste. Matine had been polluted by the dumping of waste oils from the petro-chemical industry located in the region. Many wells were contaminated (unknown to the local residents) who were thus exposed to health risks. After

Landfill sites which have somewhat incongruously been described as "sanitary", are demonstrated to be an extremely dangerous source of groundwater pollution.[69] They can pollute in two ways: first, the water percolating through the landfill can form a leachate affecting an aquifer in the same way as a septic tank leachate; second, surface waters passing over a landfill site may become contaminated and then drain into a stream which flows over an aquifer recharge zone.[70] However, this danger may not be as pronounced in those areas of Canada that have impermeable rock formations above the potable groundwater levels.

Groundwater may be also contaminated by the use of waste water application to land[71] for the purpose of soil

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an expenditure of over ten million dollars, the water in the area was still unsafe to drink in 1986.

[69] S.Muzzey, " The Safe Drinking Water Act and the Realities of Ground Water Pollution", (1983) 27 St.Louis Univ. Law Jnl. 1019.

[70] Ibid. See also, State of Canada's Environment, supra note 16 at c-13-5, regarding soil contamination by on-site burial of wastes.

[71] John S. Slade and Brian J. Ford "Discharges to the Environment of Viruses in Wastewater, Sludges and Aerosols" in Viral Pollution of the Environment, ed. G. Berg (Florida: CRC Press Inc., 1983). The authors show that studies in India and North America have revealed that this method of waste water and sludge disposal poses a danger to human health because of the potential risk of contaminating ground water with pathogenic viruses. At p.5; "A leading cause of mortality in children of the undeveloped nations is infant diarrhea....we now recognize that viruses... are a major cause of this syndrome . A well documented local outbreak of viral hepatitis in New Delhi, is more precisely understood. There were 30,000 cases in a population with a likelihood of well-developed immunity, caused by viruses in drinking water from a modern works in which there had been no

renovation and crop production.[72] Deep well injection systems as a method of disposing waste chemicals and sewage also poses a threat for large scale contamination of groundwater.[73] This threat, however, may not be a problem in those parts of Canada where deep well zones are well below the level of potable groundwater, as in Alberta for example.

Common groundwater pollutants in North America include pesticides[74]used for agricultural purposes, and industrial solvents and chemical cleansers of machinery and manufactured components, such as trichloroethylene (TCE). This chemical has been discovered in much of the groundwater and surface water used in households.[75] It affects the skin, liver, kidneys, neurological system, and

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major breakdown."

[72]James M. Vaughan and Edward F. Landry, "Viruses in Soils and Groundwaters" in Viral Pollution of the Environment, ed G. Berg, (Florida, CRC Press Inc, 1983), p.164.

[73] Ibid. at 167.

[74] The State of Canada's Environment, supra, note 16 at C.3-20: "Pesticides is a generic term used to describe a family of substances including herbicides, insecticides, and fungicides. About 500 types of such compounds are registered for use in more than 5,000 commercial formulations."

[75] Toxicological Profile for Trichloroethylene, prepared by Technical Resources Inc. for the Agency for Toxic Substances and Disease Registry, (ATSDR), App.5, (Washington, D.C.: U.S. Public Health Services, 1989), p.23 and following.

haematological system.[76]

It is apparent, therefore, that groundwater pollution[77] is a real and adverse consequence of a modern, technologically oriented world.[78] In Canada, as elsewhere in the industrialized world, the increase in the manufacture and consumption of chemicals and electricity has created a vast overflow of waste, the careless disposal of which poses a serious threat to unsuspecting innocent people's health.[79] The potential to create injured victims from polluted groundwater is clear and requires careful monitoring by government and industry.

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[76] Ibid. at 5. The Federal Government of the U.S.A. has established a drinking water standard of .005 milligrams per litre for TCE, since it has been classified as a possible source of human cancer and any exposure to it is considered hazardous to human health.

[77] See B.F. Whitman, Superfund Law and Practice (Philadelpia, American Law Institute, 1991), p. 94. The program initiated by the E.P.A. Groundwater Protection Strategy in 1984, revealed that methods used involving hazardous waste treatment, storage and disposal methods, were largely responsible for much of the contamination of North America's groundwater. Substances migrating from these sources had rendered more than 8,000 private, public and industrial wells unusable.

[78] Contamination of Groundwater by Toxic Chemicals Report 1981, (Washington D.C.: U.S. Council on Environmental Quality 1981). According to this report, the presence of organic hazardous substances forced the closure of hundreds of drinking water wells between 1978 and 1981.

[79] See for example the U.S. case of Sterling v. Velsicol Chemical Corporation 647 F.Supp. 308 : The company had dumped chemical waste in a land fill site near its manufacturing plant in Memphis; the waste leaked contaminating water from nearby wells. Plaintiffs suffered a variety of physical ailments including liver damage destruction of the immune system, psychological problems damage to the central nervous system, nausea, kidney damage and cancer.

In the next sections, we will examine surface water for possible contamination and consequent health hazards.

(ii) Natural freshwater surface systems pollution:

Canada has one of the largest natural fresh water resources in the world. Its fresh surface water is contained in lakes, rivers, streams and wetlands; Canadian rivers discharge 9% of the world's renewable water supply into the Pacific, Arctic and Atlantic Oceans.[80]

Contamination of surface water is often the result of industrial plant effluent, agricultural run-off, forestry activities, landfill leachates, poorly treated sewage and long range air borne contaminants. Most industries use water from surface systems in their manufacturing process, either for flushing, cooling and cleansing products or to dilute waste. Industry is the source of many substances that are polluting the waters of Canada and the U.S.A.[81] In Ontario, for example, even though industries which directly discharge their wastes into open bodies of water are controlled and regulated by both federal and provincial laws, their effluent frequently exceeds the pollution limits granted by government permits.[82]

These waste products often contain some highly toxic pollutants which are dangerous to human health, including heavy metals such as lead and mercury; chlorinated organic compounds such as PCBs; dioxins and furans, hydrocarbons such as PAHs, and many types of pesticides. Although many provinces have been able to reduce the total amount of toxic discharge into natural surface water systems, and some industries have made great efforts to reduce the amount of industrial effluent, there are still many pollution "hot spots" and inconsistent pollution control efforts at the level of individual companies.[83]

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[80] State of Canada's Environment, supra, note 16 at C.3-6.

[81] Ibid.at C.3-12.

[82] Report on the 1989 Industrial Direct Discharges in Ontario: Ontario Ministry of the Environment,(Toronto: Queens's Printer for Ontario, 1991).

In Appendix "B" attached, a brief description of some major pollutants of water and their effects on human health are listed. The appendix also outlines the inherent properties of some of the more highly toxic discharges that may be discharged into fresh water sources, and their potential for causing environmental injury victims. They include carcinogens, neurotoxins, and other toxic human health hazards.

The itemized substances listed in Appendix "B" are merely an example of some of the more toxic components of industrial, agricultural, and urban effluent. Most of them are harmful or dangerous to human health, depending on the degree of exposure. Efforts are being made by governments at the provincial and federal levels in Canada to reduce the quantity of pollutants which are discharged into fresh water systems.[84] However, environmentalists still have some major concerns about the amount of chemicals being discharged into river systems, especially from pulp mills:[85]

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[83] The State of Canada's Environment, supra, note 16: Chapters 16 and 18 describe respectively, the proliferation of solid waste in the Lower Fraser River Basin in British Columbia and the pollution problems of the Great Lakes Basin.

> The pulp and paper industry is the focus of considerable attention due to environmental impact. In 1987, waste discharges from the pulp and paper industry were the major industry-related environmental concern in British Columbia and New Brunswick.[86]

The list of the characteristics of major natural fresh water contaminants indicates the need for their control and regulation by government. This control is necessary, primarily because of the danger they pose to human health if discarded into the environment without consideration of their effects. It is the potential that each has to inflict damage on people that must be emphasized. If and when a criminal offence is perpetrated in relation to these substances, the effects obviously can be devastating.

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[84] State of Canada's Environment, supra, note 16 at C.3-12,13. Both the Provinces of Quebec and Ontario have attempted to reduce the discharge of industrial toxic waste. In Quebec, more than 50 industries have agreed to reduce by up to a total of 90% the amount of liquid wastes released from their establishments by 1994. Ontario, under its Municipal/Industrial Strategy for Abatement, is attempting to reduce the amount of water pollution generated by industries and municipalities.

[85] MacDonald, supra, note 18. See Chapter 15, for a detailed discussion of the Pulp and Paper Industry and government efforts to control the industry from an environmental perspective.

[86] W.F. Sinclair, Controlling Pollution from Canadian Pulp and Paper Manufacturers: A Federal Perspective, (Ottawa: Environment Canada, 1990), p.177.

(iii) Drinking Water Quality:

Since fresh surface water is the source of drinking water to three quarters of Canada's population, and groundwater supplies the other quarter,[87] any degree of pollution of these sources that endangers human health is a matter for public concern. The quality of drinking water has become of major concern to Canadians in the 1990's due to evidence of general environmental deterioration.[88] Several recent case studies that record the pollution of drinking water by industrial, agricultural and municipal pollution in different countries argue that there is a potential health danger to humans from these sources,[89] although earlier studies, such as the Federal Inquiry on Water Policy in Canada, had suggested that such dangers may be overstated.[90]

Alberta and Quebec are the only two provinces in this country which have regulated drinking water standards, based on the guidelines recommended by Health and Welfare

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[87] State of Canada's Environment, supra, note 16 at C.3-22.

[88] Ibid.

[89] A.Z. Keller and H.C. Wilson, Hazards to Drinking Water Supplies (London: Springer-Verlag, 1992), p.87-108.

[90] Hearing About Water, supra, note 53 at 21.

Canada.[91] In Alberta, the Environmental Protection and Enhancement Act[92] empowers the Minister to make regulations for the control and quality of drinking water. The current regulations are to be found in the Potable Water Regulation,[93] which requires that the physical, microbiological, chemical and radiological characteristics of the potable water in a waterworks system must be maintained to meet the minimum standards of the latest federal guidelines for Canadian Drinking Water Quality.[94] In Quebec, the relevant statute stipulates that the operator of a water facility must make regular inspections of the drinking water quality according to the regulations established by the Minister of Environment[95]. Under the Act the Minister can make regulations as to water quality and determine contaminant levels for each region or territory in the province.[96]

A survey conducted in Toronto in 1990 indicated that

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[91] Federal-Provincial Subcommittee on Drinking Water (Canada). Guidelines for Canadian Drinking Water Quality, 5th ed.(Ottawa: Health and Welfare Canada, 1993).

[92] R.S.A 1992, E-13.3.

[93] Potable Water Regulation, A.R. 122/93.

[94] See, s 6(1)(a) of the Alberta Regulation, ibid.

[95] Environmental Quality Act, S.Q. 1984

[96] B. Grover & D. Zussman, Safeguarding Canadian Drinking Waters, (Ottawa: Inquiry on Federal Water Policy, Research Paper #4 1985), p. 11.

20% of its residents were using bottled water.[97] Since most bottled water is obtained from natural springs which may be prone to contamination, depending on the permeability of the soil and rock protecting the aquifer, even this attempt to avoid contaminated water is by no means fool-proof.[98] In fact, the Federal Inquiry on Water Policy suggested that Toronto tap water was superior in quality to most bottled water.[99] A Toronto drinking water test in 1990 compared the quality of drinking water from various sources and tap water came out ahead. Since there was an absence of bacteria, which was found in varying quantities in bottled water, treated water, and device treated water, the survey concluded that:

> In the view of the Department of Public Health, tap water is currently the best choice for drinking water in terms of health considerations. The Department does not promote the use of alternatives because of inferior bacteriological quality and variable chemical quality.[100]

It is apparent that not only the sources of drinking water are of concern to people, but also the way that water is being treated to remove chemical and toxic substances.

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[97] Ibid.

[98] See " Alternatives to Central Water Treatment," (1986) 78 Journal American Water Works Association. No.12.

[99] Ibid.

[100] P.R.W. Kendall, Summary Report: The Quality of Drinking Water in Toronto: A Review of Tap Water, Bottled Water and Water Treated by Point of Use Device, (Toronto: Department of Public Health, 1990), p.29.

The conventional methods of eliminating impurities and bacteria by the addition of chlorine to the water supply, for example, have been justifiably questioned because of the formation of toxic by-products such as trihalomethanes or THMs.[101] Halogenated hydrocarbons may well be potential carcinogens and were considered a major cause of congenital abnormalities observed in the infamous Love Canal incident.[102]

The introduction of aluminum sulphate as a method of removing particulate contaminants from drinking water beforfiltration has also been a cause of health concerns. This is because of the possible connection between the degenerative brain condition known as Alzheimer's disease, and aluminum ingestion by humans. There have been no conclusive findings in this regard to date, but the situation is being monitored by Health and Welfare Canada.[103]

Many substances which currently are found in treated drinking water do not lend themselves to analysis for toxicity due to the inadequacy of current techniques. This often leads to a "catch 22" situation. In an effort to nullify toxicity, the danger is that disinfection procedures will be applied too zealously, thereby creating an imbalance and leaving high concentrations of the disinfectant in the treated water at levels dangerous to human health. On the other hand, applying too little disinfectant may result in the passage of infectious microorganisms in the treated water. The latter problem is one that prevails in Edmonton, Alberta, and was alluded to in a study which assessed the quality of that city's water supply and drinking water.[104]

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[101] Lyskins B.W. et al. "Chemical Products and Toxicological Effects of Disinfection," (1986), 78 Journal of the American Water Works Association. p. 66-75. "The THM species of halogenated hydrocarbons formed during the chlorination treatment typically are in order of concentration, Chloroform, Bromodichloromethane, Dibromochloromethane, Bromoform with chloroform forming about 75% of the total concentration."

[102] "Hazardous Waste Management" in The Almanac Of Science and Technology, ed. R. Golob& E. Brus, (New York: Harcourt Brace, 1990), p. 357-359, for a concise description of this incident. See also, Keller and Wilson, supra, note 88 at pp.52-53

[103] Guidelines for Canadian Drinking Water Quality. 4th. ed. (Ottawa: Health and Welfare, 1989).

Because of deficiencies in technological control, the current methods of attempted regulatory control in Alberta and Quebec demonstrate that even with legislation in place, it is not an easy task to obtain potable water. The difficulties become that much greater in those provinces where control of the quality of drinking water is not as carefully monitored:

> Most municipalities, which have the ultimate responsibility for the delivery of drinking water,regularly test for only coliforms[105]

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[104] Hrudey, Steve E. A Critical Assessment of Drinking Water in Edmonton. Vol.1 Overview Report and Recommendations, Edmonton, (1986) A recommended solution was to move the Rossdale intake away from likely sources of contamination such as upstream raw sewage and site specific disinfection.

[105] State of Canada's Environment, supra, note 16; Glossary of Selected Terms XVI. " A group of bacteria used as an indicator of sanitary quality in water. The total coliform group is an indicator of sanitary significance because the organisms are usually present in large tracts of humans and other warm-

> and chlorine residue, chemical constituents are checked much less frequently.[106]

This situation is one that, left unremedied, may well lead to the creation of innocent victims, who could become seriously ill because of contaminated drinking water.

C: Land Pollution:

(a) Canadian practices & approach

Mining, forestry, transportation, urban settlement, agriculture, and the creation and disposal of hazardous waste are activities prominently connected with land use in Canada. Of these human endeavours, we have dealt indirectly with most of them in the air and water pollution sections of this chapter. Perhaps the activities that pose the greatest threat to human health, in terms of land use, are agriculture and hazardous waste disposal. A brief overview of each will indicate that there is a potential danger to human health resulting from these activities. Again, this means that victims can result, particularly if regulatory controls are exceeded.

(b) Potential hazards to human health

(i) Agriculture:

Contamination of the soil can result from the application of chemicals in the form of herbicides and pesticides to agricultural land to increase crop yield. The

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blooded animals, and exposure to them in drinking water causes diseases such as cholera."

[106] Ibid. at C.3-24.

application of pesticides to control insects on cultivated land increased from 2% to 10% or 4.6 million hectares in Canada during the period from 1970-1985. In 1970, about 8.6 million hectares, were sprayed with herbicides to control weeds and brush, and that figure had almost tripled by 1985 to 22.9 million hectares.[107] In 1978, for example, 6.3 tonnes of pesticides were used on field crops, fruits, and vegetables in the Ontario portion of the Great Lakes drainage basin. From 1978 through 1986 the amount of pesticide sales more than doubled in the region.[108]

Unfortunately, pesticides have certain side effects such as soil contamination, and may persist in toxic form in the surrounding environment. Since only about 5% of the total land mass in Canada is suitable for agricultural purposes, any portion of this limited area that becomes polluted is a matter of grave concern not only for farmers, but also for the health of individuals. The federal government has taken legislative steps to control some of the more dangerous pesticides such as aldrin, dieldrin and alachlor, which are compounds linked to potential health-related effects, by removing them from use in Canada. The Pest Control Products Act, administered by Agriculture

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[107] Statistics Canada, A Profile of Canadian Agriculture (Ottawa: Statistics Canada, 1986), p.36.

[108] Agriculture Canada, An Economics Assessment of the Benefits of the 2.4-D in Canada, (Ottawa: Agriculture Canada, 1988), p.viii.

Canada, is now focused on controlling pests and the organic functions of plants and animals.[109]

(ii) Hazardous and Toxic Waste:

> There can be little doubt that the most alarming issues for the late eighties and early nineties, are the effects of various kinds of environmental problems related to the exposure to persistent toxic substances, often in amounts that appear to be infinitesimally small.[110]

While the C.E.P.A. has defined toxic substances for the purposes of that Act,[111] as a more general rule the terms hazardous and toxic waste are often used interchangeably in environmental contexts. In this study, "hazardous" waste means that waste which includes toxic waste but which, in its own right, is composed of materials which have dangerous or fatal components. It is waste that poses a risk to human health and requires special disposal techniques to make it less harmful and dangerous. It has been defined as waste that:

> Because of its quantity, concentration, or physical, chemical or infectious characteristics, may cause serious illness or death..or pose a .. substantial

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[109] Pest Control Products Act R.S.C. 1985 c.P-10; See also State of Canada's Environment, supra, note 16 at C. 9-24.

[110] Environmental Scan: National and International Issues, Prepared for Canadian Council of Ministers of Environment, (Winnipeg: Institute for Research on Public Policy, 1991), p. 69.

[111] See, C.E.P.A. Part II, Toxic Substances Interpretation; Section 11. Toxic substances.- For the purposes of this Part, a substance is toxic if it is entering or may enter the environment in a quantity or concentration or under conditions....
(c) constituting or that may constitute a danger in Canada to human life or health.

> present or potential hazard to human health or the environment when improperly managed.[112]

"Toxic waste" means that waste which has the inherent potential or capacity to cause adverse effects in a living organism and has been defined as:

> A substance which can cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological or reproductive malfunctions, or physical deformities in any organism or its offspring, or which can become poisonous after concentration in the food chain or in combination with other substances.[113]

Examples of hazardous and toxic wastes include acids from pulp and paper manufacturing, metallurgical processes, and residues from oil refining; they are also by-products of the pharmaceutical, textile and electroplating industries. These substances contain many dangerous chemicals, including phenols, arsenic, lead, mercury, and PAHs, the characteristics of which are described in Appendix "B". They also contain toxic chemicals such as PCBs, dioxins and furans which are biologically harmful even in minuscule concentrations.[114]

In Canada, we produce almost 8 million tonnes of hazardous waste annually. Current estimates of contaminated sites in Canada show that there are over 1,000 high risk sites which require attention and clean-up work, so as to reduce the pollution of the surrounding areas where they are located.[115] In comparison with the U.S.A., Canada produces relatively small amounts of hazardous waste.[116] In its 1988 report,[117] the U.S. General Accounting Office concluded that it was almost impossible to estimate the number of hazardous waste sites in the U.S.A. which require urgent attention for possible inclusion in the National Priorities List[118] under SuperFund cleanup legislation.[119]

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[112] Golob & Brus, supra, note 54 at 358.

[113] Great Lakes Water Quality Agreement (1978) Can. Treaty Series 20, Article I (v).

[114] State of Canada's Environment, supra, note 16 at C.3-17

Toxic chemicals and their current methods of disposal have also the potential to create a significant threat to human health and well being in Canada. [120] These chemicals have the ability to bioaccumulate, which means that chemical substances are ingested and retained by organisms, "either from the environment directly or through consumption of food containing chemicals".[121] Another feature which compounds the problem is the often long delay time between exposure to hazardous or toxic waste and the signs of insidious disease[122] or sickness exhibited by the victim:

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[115] Management Plan for Nitrogen Oxides and Volatile Organic Compounds (VOCs); Canadian Council of Ministers of the Environment, (Ottawa: Environment Canada, 1990).

[116] According to the Organization for Economic Cooperation and Development (OECD), the U.S. leads the world in the production of hazardous waste, having produced about 250 million tons annually between the years 1980 and 1986. Up to 80% of this type of waste is still being dumped into landfill sites, which may often leak, regardless of how well they have been constructed.

[117] Glob and Brus, supra, note 54 at 360.

[118] Assessing Contractor Use in Superfund, Report,1989, (Washington, D.C.: Office of Technology Assessment, 1989); See also From Pollution to Prevention: A Progress Report on Waste Reduction, (Washington, D.C.: Office of Technology Assessment 1987) It was estimated in 1985 that the NPL list could easily contain as many as 10,000 sites with total clean up costs in the region of $100 billion dollars. This figure was revised upwards in a 1989 report by the U.S. Office of Technological Assessment to show that clean-up cost projections would be more realistically reflected in a figure of $500 billion dollars over a period of 50 years.

[119] The Superfund Amendment and Reauthorization Act, (S.A.R.A.), Pub. Law No. 99-499, 100 Stat. 1613 (1986)

> Diseases, genetic abnormalities, and birth defects, known to be or suspected to be caused or exacerbated by toxic chemicals, typically take from one to four decades to manifest themselves.[123]

Nuclear waste disposal methods are also a problem in terms of health hazard to the populace. The main concern of most Canadians in connection with the production of nuclear power is the effects of radiation.[124] Fortunately, Canada has not experienced any "major" nuclear accidents, but it has not yet been able to devise a completely safe method of disposal of highly radio-active nuclear waste. Atomic Energy of Canada Ltd. is working on a method of safe geological storage in the granite rock of the Canadian Shield.[125]

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[120] J.F. Castrilli, " Control of Toxic Chemicals In Canada: An Analysis of Law and Policy", [1982] 20 Osgoode Hall L.Journal 323.

[121] State of Canada's Environment, supra note 16, Glossary of Selected Terms, XV.

[122] David Rosenberg, "The Causal Connection in Mass Exposure Cases: A "Public Law" Vision Of The Tort System," (1984) 97 (4) Harvard Law Review, p.852, note 3. "Insidious disease" is any carcinogenic, mutagenic, or teratogenic condition. A disease is insidious because it only appears after a lengthy term of dormancy or undetected progression.

[123] Everything Doesn't Cause Cancer 2 ,(1980) National Cancer Institute, National Institutes of Health, Pub.No. 80-2039.

[124] State of Canada's Environment, supra, note 16 at C. 12-28.

Delays in the clean-up process, safe transportation,[126] and finding safe storage facilities,[127] especially for nuclear waste, exacerbate consequent dangers to public health. This is becoming more and more a matter of concern, and some public health professionals insist that the only safe level of exposure to carcinogens is none at all.[128]

Although hazardous waste is not the only threat to human health and the environment, it does pose unique legal problems for the victims it creates, because of the latency period (which is the delay between the onset of the disease or illness and the initial exposure to the hazardous substance) and also the related difficulty in establishing who was responsible for creating the danger encountered by its victims.[129] Nevertheless, it seems clear that human injury can result from the improper discharge of toxic substances, resulting in additional environmental victims.

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[125] Report Prepared by Acres International Limited, Niagara Falls ,(Ottawa: Federal Environmental Assessment Review Office, 1989). Contains a review of various approaches being undertaken by industrialized nations for the management and disposal of high-level nuclear waste.

[126] For an example of the dangers of transportation of hazardous materials, a good illustration is the incident which occurred in 1979 at Mississauga, Ontario where a train carrying toxic chemicals was derailed resulting in the evacuation of 200,000 people from their homes.

[127] The necessity for safe storage is exemplified by the escape of toxic chemicals with deadly consequences in Bhopal, India, 1984. Two thousand people were killed and many more suffered serious illness, when methyl isocyanate was accidentally discharged into the environment. New York Times, Jan.3,1985 at 5, col.3.

[128] Anne F. Morris, " Hazardous Wastes in New Jersey: An Overview",[1986] 38 Rutgers Law Review, 623.

Conclusion:

A pattern of potential danger to human health and safety emerges from the foregoing brief examination of the pollution of air, water and land in Canada. Efforts to control pollution have not eradicated the problem, but rather give tacit acceptance to the philosophy that environmental pollution is inevitable in modern society, and it is merely a matter of how much pollution is acceptable or considered manageable. In North America, governments have permitted environmental pollution to continue over the past twenty or thirty years to a greater or lesser degree and industry has continued to pollute the environment either with or without governmental permission.[130] Consequently, human health may be endangered from the cumulative effects of this continuing environmental pollution. The potential magnitude of environmental health problems which such policies have brought about is of deepening concern and has the potential for the creation of many innocent victims among Canadian residents.

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[129] See "Developments In the Law- Toxic Waste Litigation", [1986] 99 Harvard Law Review, pp.1459-1661.

[130] For a good example of "permissive legislation" See The Environmental Contaminants Act, R.S.C. 1985, c.E-12 as am. Sec 17 (1) requires that no person shall release into the environment a substance (a) ..."in a quantity or concentration that exceeds the maximum quantity or concentration prescribed,in respect of that substance in the Schedule to the Act.(emphasis added). Some of the "substances" in the Schedule include for example, Chlorobiphenyls and Cholorofluorocarbons which are toxic substances even in minute quantities.

The dangers posed to human health by contamination of the air, water and land is an ongoing problem. There is no quick remedy or instant solution which would eliminate the potential for the creation of victims who may suffer injury from environmental pollution. This thesis will show that, in Canada, there is no comprehensive legislation or administrative system which deals *exclusively* with the rights of people who may suffer from environmental injuries or sickness.

There is little doubt that the potential exists in Canada for the creation of victims of environmental pollution. Some of these victims will result from pollution that is in breach of the regulated limits; this illegal conduct may be viewed as an environmental crime. This study is focussed on this type of victim rather than on all victims of environmental pollution (some of whom may suffer injuries as the result of legal behaviour). The reason for this limited focus is so that the remedies available to such victims may be compared to those of victims of the more "traditional" crimes of violence.

The question arises as to whether victims of environmental crimes should be recognized as a distinct group, or whether they should be treated purely and simply as victims of crime. Should they, because of their newly acquired "victim" status, receive any special consideration by government, the judicial, or administrative systems? These questions are considered in Chapter 2 of this thesis which compares the victims of traditional crime with victims of environmental crime.

CHAPTER 2

VICTIMS OF CRIMINAL VIOLENCE AND PERSONAL INJURY VICTIMS OF ENVIRONMENTAL OFFENCES: A COMPARATIVE ANALYSIS

Introduction

It is apparent that the potential exists in Canada for creating environmental victims. Some of these victims will result from conduct prohibited by environmental legislation that makes criminal or quasi-criminal offences of certain environmental practices which endanger the life or well-being of people. In this chapter it will also become apparent that the existing legal framework in Canada was not structurally designed to deal with this type of victim.

Most environmental offences are not "true" crimes, in that they rarely contain the element of mens rea. This creates two consequences. First, environmental victims are not considered as "real" victims of crime within the criminal justice system. Second, they do not have the same remedies available to them as victims of "traditional" crimes of violence, who may be eligible for consideration under government sponsored crimes compensation schemes. Hence, we are confronted with a class of victim that does not appear to "fit" into the existing scheme.

In this chapter it is proposed to establish that victims of environmental offences deserve to be treated on par with victims of violence, where their injuries result from illegal environmental conduct. Such behaviour will be referred to herein as an "environmental crime".

While this study is mainly concerned with the remedial aspect of victim compensation and its improvement, one must first establish the "criteria" necessary to be a "victim". It becomes important to compare environmental victims with victims of other crimes, and discover their identifiable characteristics. In addition, one must examine how victims of violent crime are treated within the criminal justice system. Then, and most importantly for the purpose of this study, it is necessary to look at the remedies that are theoretically available to environmental victims, both within the criminal justice system itself, and from other possible sources.

Because a new type of victim has been created, the chapter begins by tracing the characteristics of victims sociologically, and examining victims as an identifiable group. In the first section, the sociological criteria a person needs to meet, before being considered a victim, are reviewed. Victims of traditional crimes against the person are then compared to victims of environmental offences and found to have similar characteristics. The second section, examines historically the status and treatment of the victim by the Canadian justice system. The trend towards recognition of the victims' interests by the criminal justice system is noted along with the legislative and judicial approach to restitution.[1] An important question examined in this section is why victims of personal injuries should not be compensated solely under the common law.

This leads to a brief discussion in the final section of tort law as an alternate method to restitution for compensating victims for bodily injuries suffered as a result of environmental pollution. Some of the problems connected with tort remedies are reviewed. They are found lacking, and not designed to deal satisfactorily with victim's compensation.

It will be shown that neither restitution nor tort provide adequate means of compensation for most victims of violence or victims of environmental crimes. This leaves one other alternate avenue of redress, namely, crimes compensation systems. Even though these compensation schemes were primarily designed to compensate victims of traditional crime, they will be examined in detail in Chapter 3 of this thesis to determine if they could be amended to encompass realistically the adequate compensation of pollution victims.

A: Victims as an Identifiable Group

(a) Sociological determinants that establish victim status:

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[1] P. Burns, Criminal Injuries Compensation, 2nd ed. (Toronto: Butterworths, 1992) at 4. "Restitution" is defined as "state-enforced reparation of the victim by the offender, usually as part of the criminal law process". This definition will be appropriated for the purpose of this study.

Most people have no difficulty in associating criminals with their victims, when acts of violence have been committed, because of the close personal interaction between the parties. This close relationship is not necessarily present in environmental crimes, where, for example, the criminal may often be a corporate entity unidentifiable to the victim. It is this anonymity which is perhaps the major difference that distinguishes environmental victims from victims of violent crime.

In modern times the term "victim", in the context of traditional crime or natural disaster, is one with which most people can readily identify. It generally connotes an innocent person who, due to circumstances beyond his or her control, is the recipient of an injury to the body or property, that causes loss, pain or suffering to that person. A victim has been defined in sociological terms as:

> ...any individual harmed or damaged by another or by others who perceives himself or herself as harmed, who shared the experience and seeks assistance and redress, and who is recognized as harmed and possibly assisted by public, private or community agencies.[2]

Thus, in the sociological framework, the harmed individual may not and does not necessarily have to be the victim of a criminal act.[3] In the "traditional" or legal context, however, where for an example an assault on the person occurs, such individuals may be considered victims of crime. Nevertheless, regardless of the source of harm, all victims share a common bond, in that their lives have been disrupted by a force or circumstances generally outside their control.

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[2] "Crime and its Victims", International Research and Public Policy Issues, Proceedings of the Fourth International Institute on Victimology (NATO Advanced Research Workshop), ed. Emilo C. Viano (New York: Hemisphere Publishing Company, 1987), p.4.

As social scientists and criminologists began to identify victim characteristics, a specialized sociological discipline emerged with its own goals, and which defined victim profiles in even more detail. The development of this new social science of victimology was, according to one of the founders of the science,[4] for the purpose of achieving "fewer victims in all sectors of society, and was basically to redress injustice and to protect the weak".[5] The science made its first appearance in the U.S.A. in the early 1940's in the works of Von Hentig.[6] It is essentially a branch of criminology and emphasis is placed on the study of the victim's role sociologically and also in the criminal justice system.

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[3] Ibid., at 4: "whether victims of natural disaster, war, environmental pollution, should be included in this definition is debatable."(emphasis added).

[4] B. Mendelssohn, " The Origin of the Doctrine of Victimology", re-printed in Victimology, eds. I.Drapkin and E.Viano (Lexington: D.C. Heath and Company, 1974).

[5] P. Rock, A View From The Shadows (Oxford: Clarendon Press, 1986), p. 74.

[6] H. Von Hentig, The Criminal and His Victim (New Haven: Yale University Press, 1948).

A main premise of victimology is that there are four stages of the process of victimization.[7] They are enumerated by the sociologist Viano as follows. In the first stage, individuals experience harm, injury or suffering caused by another person or institution. In the second stage, some of these individuals perceive such harm as undeserved, unfair and unjust, and they, therefore, see themselves as victims. In the third stage, some of these individuals, perceiving themselves as harmed or victimized, attempt to get some other person (e.g. family, friends, helping professionals or authority figures) to recognize the harm and validate the claim that they have been victimized. Finally, some of these individuals receive validation of their claim and become "official" victims, possibly benefitting from various types of support.

If one applies these four stages concurrently to victims of criminal violence, and victims of pollution, it is apparent that they can (with minor adaption) be utilized to accurately describe either group. Both types of victims suffer physical trauma to their bodies through no fault of their own. The only difference is that in many cases, such trauma is perceived immediately by the victim of a physical assault, while recognition of environmental injury may occur only after a fairly lengthy period of time by the pollution victim (due to, for example, latency periods).[8] In both cases, however, the trauma is perceived as being undeserved, and unfair, and consequently each person subjectively sees him or herself as a victim. As such, the victim turns to those who may help and be of support, psychologically and financially, so that some measure of justice is sought by the victim or his or her family.

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[7] Viano, supra, note 2 at 3-4.

One difference, however, is noticeable in comparing victims of traditional crime and environmental victims. This occurs in Viano's fourth stage, wherein victims receive "official" status as victims. This "official" recognition is readily observed for victims of traditional crimes within the criminal justice system, either as witnesses in the prosecution of offenders or from victim support groups.[9] "Official" recognition is not so evident for victims of environmental offences who are not as readily identifiable, and who do not have the same support groups as victims of violence.

In the process of seeking official recognition of their victim status, as well as psychological and financial help, many victims form self-help organizations. Since 1981, there has been a proliferation of small special interest groups, especially in the field of criminal victimization. Perhaps environmental victims might gain enough recognition to be considered as having certain special needs and thus "official" recognition if they formed a large enough group (the aims of which were directed solely to the issue of compensation for personal injuries received as a result of environmental offences). Even in the absence of such organization, however, by placing the environmental victim in the criminal framework it is possible to obtain further insight into "victims" as a group of individuals.

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[8] Supra, Chapter I, note 121 and accompanying text.

[9] R.C. Davis & M. Henley, "Victim Service Programs" in Victims of Crime: Problems, Policies and Programs , eds. A.Lurigio, W. Skogan & R. Davis, (Newbury Park: Sage Publications, 1990), at 157; the authors estimate there are over 5,000 service programs currently in operation for victims of traditional crime in the U.S.

(b) Placing Environmental Personal Injury Victims in the Crime Framework:

In the sociological sense, there appears to be little difference between victims of pollution and victims of violence. Both suffer traumatic injuries to their person and share similar characteristics. However, the question whether environmental victims are distinguishable in the legal sense from traditional victims of violence will be probed in this section. This will be done by first examining the report of the Law Reform Commission and its recommendations regarding environmental offences.[10] Second, some of the difficulties in making environmental offences criminal will be examined.

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[10] Crimes Against the Environment, Law Reform Commission Working Paper 44 (Ottawa: Law Reform Commission of Canada, 1985).

It is necessary to make the comparison between the two classes of victims because of the significant difference in the types of remedies available to each. Victims of traditional crimes of violence may be eligible for compensation under Crimes Compensation schemes, while environmental victims do not have access to this remedy, primarily because they fail to meet the criteria necessary to fall within the ambit of such schemes.

As we shall see in Chapter 3 of this thesis, victims of traditional criminal offences can qualify for compensation under Crimes Compensation legislation, provided, amongst other things, that the crime committed against them is one of those listed in a Schedule of Criminal Code offences. The main criteria for qualification under these statutes is that an applicant be a "victim of (a crime of) violence".[11] This is the major stumbling block for environmental victims, since an environmental offence is not the type of crime that the schemes contemplate, and, more importantly, is not usually listed as an offence under the Criminal Code.[12]

Instead, victims of environmental pollution are generally considered as victims of civil or quasi-criminal offences. Their remedies lie in the bringing of a civil action (or a class action, where many people were injured) as the result of an offence. While it may be difficult to conceive of victims of pollution as victims of crime in the traditional sense, the creation of criminal-type environmental offences has now placed the victims squarely within the criminal justice process.

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[11] See infra, Chapter 3 note 4 and accompanying text.

[12] See, infra note 17 and accompanying text.

(i) Recommendations of the Law Reform Commission

Legislation such as the C.E.P.A.[13] was spawned primarily because of recommendations of the Law Reform Commission's study on environmental offences that were hazardous to human health, which recommended including crimes against the environment within the Criminal Code. Even though the recommendations of the Commission were put into effect by placing new environmental offences in statutes other than the Criminal Code, it is of assistance in comparing the environmental victim with the victim of traditional crime to look at the Commission's rationale. It was emphasized in the report that both types of victims are equal, differing only in the kind of injury sustained. If this is true, then pollution victims should be treated within the system like other "established" victims, even though, as we will discover, such treatment is not yet fully oriented to the best interests of the victims.

The Commission suggested, in 1985, that there should be a broadening of the penal aspect of environmental offences, particularly in those cases where victims might suffer personal injury or disease as a result of environmental offences. These offences would be, in effect, criminal offences, or offences that contained certain elements that, in the Commission's view, justified placing the offence within the criminal realm. The elements that need to be present before an offence becomes criminal in the environmental setting were identified using five tests:[14] the first test is whether a fundamental value has been contravened; the second is whether the offence is seriously harmful; the third is whether the perpetrators of the offence have the required mental element or mens rea; the fourth is to ensure that enforcement does not contravene the fundamental value; and the fifth is to see if classifying certain offences as a crime makes a significant contribution to dealing with the harm and risks they create. If all of the elements are present in the environmental activity complained of, the Commission recommended that such activity be designated criminal, and sanctionable as such, and that specific environmental offences should be created and placed in the Criminal Code of Canada.[15]

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[13] See, Canadian Environmental Protection Act, R.S.C. 1985, c. 16 (4th Supp.) ss.111-122. "Offences and Punishment"

To date, this recommendation of the Commission has not been implemented and environmental offences are not included in the Criminal Code. However, a mens rea offence provision was added to the C.E.P.A. that does meet the criteria of the

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[14] Ibid., p.7-42.

[15] Ibid.

Commission[16]. This offence contains the necessary element of intent or recklessness and meets the standard of criminal negligence provided in the Criminal Code. It also complies with the Commission's criteria of being in essence, a "true" crime. It is, therefore, arguable that the victims of such an offence should have the same remedies as a Criminal Code victim including crimes compensation.

Obviously, the creation of environmental offences that are criminal in nature does not directly give a victim a remedy. Nevertheless, if these offences had been enacted as part of the Criminal Code, the possibility would exist for such victims to qualify for remedies, in the form of either restitution or crimes compensation. These remedies, although primarily directed to property damage or loss, are currently available to persons who are injured as the result of a crime of violence. Thus, environmental criminal offences, if created, could be reviewed in each province, with the object of being made eligible for restitution, or possible inclusion in the schedule of compensable crimes.[17] The fact that they were separately enacted has precluded even this possibility.

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[16] See, s 115 of C.E.P.A. which reads:
(1) Every person who, in contravention of this Act,

(a) intentionally or recklessly causes a disaster that results in a loss of the use of the environment, or

(b) shows wanton or reckless disregard for the lives or safety of other persons and thereby causes a risk of death or harm to another person,

is guilty of an indictable offence and is liable to a fine or to imprisonment for a term not exceeding five years, or to both.

(2) Every person who, in contravention of this Act, shows wanton or reckless disregard for the lives or safety of other persons and thereby causes death or bodily arm to another person is subject to prosecution and punishment under section 203 or 204 of the Criminal Code.

It was pointed out by the Commission that the current Criminal Code of Canada contains six offence sections that might apply to environmental situations.[18] If these sections were to be used in the prosecution of environmental offences then environmental victims might come within the ambit of crimes compensation, provided the offences formed part of the Schedule of offences necessary to "qualify" for consideration as a victim of crime.

Unfortunately, because of the narrow and limited wording of these Code offences, they are not nearly explicit enough to cover many types of environmental infractions and are almost never used for that purpose.[19] For example, the offence of criminal negligence "could be one of the most important Code provisions for prosecuting offenders against the environment."[20] The Commission noted, however, that this section is difficult to use for environmental offences because its meaning is unclear and relies solely on recklessness as a test for criminal negligence. Thus, it can be seen why the Commission was attempting to rectify the paucity of environmental offence sections in the Criminal Code.

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[17] See, for example, the Crimes Injuries Compensation Act, S.A. 1982, c. C-33. Schedules 1 & 2 entitled "Description of Offence," and contain the relevant sections of the Criminal Code. The activities and procedures of Compensation Boards will be dealt with in detail in the following chapter.

[18] R.S.C. 1985, c. C-46. These offences are contained in the following sections:
(i) Criminal Negligence: s.221. (ii) Common Nuisance: s.180. (iii) Mischief: s. 430(1)(iv) Causing a Disturbance: s.175 (1)(v) Volatile Substance: s.178 (vi) Explosive Substance: s.79
The potential usage of each of the foregoing sections for environmental offences, is discussed in detail in the Law Reform Commissions Working Paper 44, supra, note 11 at p. 51-58.

[19] Law Reform Commission Report, supra, note 10 at 51.

Despite difficulties in proof requirements, the Commission recommended that the main criteria for making pollution a Criminal Code offence should be whether there is a serious threat (directly or indirectly) against the life or health of individuals.[21] Less serious offences should remain in regulatory legislation. The rationale behind this approach lies in the fact that the range of harm that can result from environmental offences covers a broad spectrum, and it is reasonable, therefore, to justify a wide range of responses. Pollution offences at the most serious end of a scale of merit should invoke the most serious sanctions, including criminal penalties, while less serious offences should not be included in the Criminal Code.

If the conduct or activity is seriously harmful, so that the bodily integrity or health of an individual is compromised, then such an activity when flagrantly or recklessly carried out should merit extreme responses by society and by legislation. In the Commission's opinion,

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[20] Ibid.

[21] Ibid., at 16.

> "Serious environmental offences are in effect crimes of violence against the environment, and very often (directly or indirectly) against human life or health. An important conclusion may follow: that in instances of serious harm or risk, **environmental laws** are **criminal laws** and should be as vigorously enforced as those against murder, assault, and theft, unless there are good reasons to the contrary."[22]

If we accept the Commission's analysis, then no distinction should be made between compensating one type of victim over another class of victim suffering similar consequences. Each person has been victimized as the result of a criminal offence, or an act which contains the basic elements of a criminal offence such as proof of mens rea.

It is submitted that, at the very least, the foregoing type of victim should be eligible to apply in the same manner as victims of "traditional" criminal offences for possible eligibility for restitution, or compensation, to Crimes Compensation Boards. This should be so whether the prosecution occurs under the Criminal Code, or under other environmental legislation, such as C.E.P.A., so long as the Commission's test for eligibility are met. This elevation of persons injured by pollution to criminal victim status does not deal effectively with their situations, but at least it would afford them recognition as an identifiable group within the criminal justice system.

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[22] Ibid., at 39.(emphasis added).

Victims of pollution suffer physical injury, financial loss and emotional injury. Environmental offences can be equated to crimes against the person, in that they affect the victim with at least as much devastation as a violent physical assault that results in personal physical injuries of a serious nature.[23] Their effects are in many cases longer lasting, more injurious to health, and leave the victim with an equal sense of frustration and helplessness. The victim of toxic waste or environmental pollution is not as publicized, ubiquitous, or easy to recognize as the victim of crime, and yet as we have seen in the introduction to this study, the potential for the creation of such victims is growing at an alarming rate.[24] Unfortunately, however, there are some difficulties associated with making environmental offences into criminal offences.

(ii) Environmental offences as "criminal" offences

One of the difficulties in "upgrading" environmental offences to criminal offences, is that the element that must be present to make an act a crime is the ingredient of mens rea or a guilty mind. The Supreme Court of Canada in R. v.

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[23] See, Perspectives on Victimology, ed. William H. Parsonage, (Beverly Hills: Sage Publications, 1979), at 142. "Serious injury" has been defined as "any victim injury which requires medical attention."

[24] Chapter 1 supra, notes 11 & 14 and accompanying text.

City of Sault Ste. Marie,[25] intended to clarify the classification of certain offences[26] by abolishing the dichotomy between mens rea and absolute liability offences, and finding that offences connected with the welfare of the public, such as environmental offences, are primarily offences of strict liability.[27]

Strict liability offences are offences where an accused may use the defence that reasonable care was taken to prevent the offence from happening.[28] They do not meet the Commission's test of being a "true crime". Nevertheless, the harm that can be done to a victim of such an offence may prove just as physically devastating as the harm from a mens rea offence. The question arises, therefore, as to the position of a victim of a strict liability offence, where a defendant negligently injures the victim? Should a victim be deprived of compensation or the possibility of being eligible for compensation in such a case?

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[25] [1978] 2 S.C.R. 1299

[26] Ibid. at pp 1325-1326. Dickson, J's categorization of public welfare provisions in regulatory laws were:

1. Offences in which mens rea, consisting of some positive state of mind such as intent, knowledge, or recklessness, must be proved by the prosecution either as an inference from the nature of the act committed, or by additional evidence.

2. Offences in which there is no necessity for the prosecution to prove the existence of mens rea; the doing of the prohibited act prima facie imports the offence, leaving it open to the accused to avoid liability by proving that he took all reasonable care. This involves consideration of what a reasonable man would have done in the circumstances. The defence will be available if the accused reasonably believed in a mistaken set of facts which, if true, would render the act or omission innocent, if he took all reasonable steps to avoid the particular event. These offences may properly be called offences of strict liability.

3. Offences of absolute liability where it is not open to the accused to exculpate himself by showing that he was free of fault.

[27] J. Swaigen, Regulatory Offences In Canada: Liability and Defences (Toronto: Canadian Institute For Environmental Law & Policy, 1992), 29.

[28] D. Saxe, Environmental Offences: Corporate Responsibility and Executive Liability (Aurora: Canada Law Book Inc., 1990), at 145.

In this situation, one might draw the analogy of a victim of violence where the violent offender does not intend to harm the victim. If for instance, a police officer, while chasing the perpetrator of a violent crime, injures an innocent bystander should that person be compensated for injury? No crime has been committed directly against the victim, but injuries are sustained. It was held in the English case of Schofield,[29] "that personal injury was directly attributable to an arrest or an attempted arrest of an offender",[30] even when the victim is accidentally knocked down by a detective in pursuit of a shoplifter, and crimes compensation could be awarded to the victim. Although Professor Burns argues that this case would not be good law in Canada (because of the "Good Samaritan" provisions in some crimes compensation acts[31]) it is submitted that an environmental victim who suffers personal injury as the result of a strict liability offence should receive compensation. Such a victim is none the less a victim even though the offender did not intend the resulting harm, yet carelessly failed to take every reasonable precaution to prevent it. Environmental offenders are acting illegally even if committing a strict liability offence and they are still at fault. Hence, there should be no distinction made between the victims who are either harmed by a mens rea offence or a strict liability offenc

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[29] R.v. Criminal Injuries Compensation Bd. Ex p. Schofield [1971] 2 All E.R. 1011 (Q.B.).

[30] See, Burns, supra, note 1 at 58.

[31] Ibid.

There also appears to be a "special approach" to sentencing in environmental cases.[32] Traditional criminal offences against the person that require the element of a mens rea or guilty mind are almost always considered serious enough under the Canadian Criminal Code to warrant severe penalties.[33] In this regard, federal and provincial environmental laws in Canada are becoming more penalty-oriented and severe criminal sanctions can be potentially imposed on violators.[34] In comparison, there are two major factors peculiar to environmental offences: first, most environmental offenders are corporations, providing possible social benefits such as employment for the local citizenry; and second, most courts accept the fact that the risk of pollution is inherent in many otherwise socially and economically useful activities.[35] Courts realize that the problem of pollution must be balanced against the economic and technological realities of a particular operation. The effect drastic penalties (such as closing down the operation) might have on the livelihood of the people employed by the offending mill or factory must be considered. Thus, there may often be an atmosphere of ambivalence surrounding the sentencing procedure in environmental convictions which is not found in traditional criminal offences.[36] Courts may be predisposed to viewing environmental offences as "less serious" than "true crimes".

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[32] J.Swaigen & G. Bunt, Sentencing In Environmental Cases: A Study Paper prepared for the Law Reform Commission of Canada (Ottawa: Protection of Life Series,1985) at 40.

[33] R.S.C. 1985, c. C-46. Sections which deal offences against the person are dealt with in Part VIII of the Code from Sections 214 to 320 inclusive.

[34] See, the Canadian Environmental Protection Act S.C. 1988, c.22, s.114, which imposes a fine not exceeding one million dollars or to imprisonment for a term not exceeding five years or both for anyone who knowingly provides the Minister with false or misleading information regarding the use of potentially toxic substances.

Even where a prosecution is undertaken and a penalty is imposed, the outcome does not often benefit the victim. We shall see in the subsequent section on restitution that seldom is anything paid directly to alleviate the suffering, injury, disease or sickness incurred as the result of a criminal offence. Neither federal nor provincial environmental statutes provide for restitution or compensation for personal injury.

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[35] Swaigen & Bunt, supra, note 32 at 42.

[36] Ibid., at 40-44.

In summary, we have seen that environmental victims are like victims of crime from a sociological perspective. They meet the fundamental criteria that sociologists argue must be present for a person to "qualify" as a victim. Furthermore, if we accept the recommendations of the Law Reform Commission, environmental victims are in many ways victims of "true crimes". Even if environmental offences are not included in the Criminal Code, they often contain those elements which the Commission deemed essential to make the offence a criminal offence, warranting the imposition of severe criminal sanctions. It would follow that victims of these types of offences should essentially be treated as victims of crime.

However, even though environmental victims suffer the same trauma as victims of violence, they are not covered by crimes compensation schemes. Environmental legislation has not, by and large, dealt satisfactorily with such problems as compensation for personal injuries that may occur as a result of environmental offences.[37] In addition, restitution for victims of crime has only recently begun to be addressed by the courts, but mainly from the loss of property aspect.

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[37] The Canadian Environmental Protection Act, supra, note 34. For example: sections 136 and 137 of the Act provide for a civil cause of action and recourse to remedies at common law for any person who has suffered loss or damage as a result of conduct that is contrary to any provision of the Act. It does not however speak of personal injury per se, and the wording of the section seems to be framed to encompass loss to property and the costs of investigating an infraction.

It will become apparent that the justice system has, until recently, not been overly concerned with the welfare of the victims of traditional crime. In the next section, some insight will be obtained regarding the relationship of victims generally to the justice system. It is then proposed to look at the ways in which victims might be presently compensated, starting with the present models of crime and tort. Although the Criminal Code provides for restitution to victims by an offender, and the tort system is supposedly designed to act as both a deterrent and palliative, it becomes apparent that neither of these potential methods of compensating environmental victims is satisfactory.

B: The Canadian Justice System and Victims of Crime

(a) Victims of Crime: Historical & Current Perspectives

By briefly tracing the historical evolution of the victim within the criminal justice system it is possible to obtain an understanding of how victims became alienated from the system. It cannot be denied that justice for an accused is extremely important; however, criminal justice is a part of society's attempt to levy social justice and as such, "requires that society take responsibility for making

victims whole again".[38] In recent years, North American society has become more and more focused on the "plight of victims of violent crime",[39] but it is only within approximately the last decade that the victim's role in the criminal justice system has become recognized as important.

Historically, the transition to the modern form of the criminal justice system took a major step forward during the reign of Henry II (1154-1189 A.D.) when the feudal system of law was superseded by a system of common law. Writs, procedures and the common law replaced blood feuding. The imposition of public punishment became the exclusive jurisdiction of the state. Until that time, Western culture's focus on the criminal-victim relationship was centred around the reparation by the offender to the victim or the victim's family and "whether or not an act was a crime was entirely dependant upon the victim's arbitrary assumption".[40] Reparation often took the form of the development of a blood-feud between families or clans, and was for the purpose of maintaining a balance of power in early societies.[41] The proclamation by King John of the Magna Carta in 1215 A.D., and the emergence of feudalism and christianity were also mechanisms that eventually eliminated blood feuding.

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[38] R. Rieff, The Invisible Victim (New York: Basic Books, Inc., 1979), p.16.

[39] Burns, supra, note 1 at 1.

[40] S.Schafer, Victimology: The Victim and his Criminal (Virginia:, Reston Publishing Company Inc., 1977), p. 8.

Gradually, a system of compensation involving a payment to the victim's family, subsequent to a killing or injury, evolved. This was a very significant beginning in the separation of the victim from the criminal justice system.[42] Private disposition of a criminal case by payment of compensation was no longer allowed.

The final decline of the victim's role in the criminal justice system began during the Enlightenment with the writings of Beccaria and Bentham.[43] Both of these utilitarian philosophers argued that the interests of the common law should serve society and not the victim. The purpose of punishment was deterrence and to repay the offender's debt to society.[44]

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[41] Ibid.

[42] J. Hagen, Victims Before the Law, (Toronto: Butterworths, 1983), p. 8.

[43] See, Encyclopedia Britannica, Vol. I (Chigago, Benton 1980) at p.916: Cesare Beccaria (1738-1794). His work, Crimes and Punishments (1794, translated into English in 1880), was a critical study of the criminal law of his times. It was written from a utilitarian point of view and affected the then current approaches to legislation in Europe and the U.S.A.; also at p.98: Jeremy Bentham, (1748-1831) was also a utilitarian philosopher. In his book, An Introduction to the Principle of Morals and Legislation, (1789), he stated that the object of the law was to achieve the "greatest happiness of the greatest number".

[44] Hagen, supra, note 42 at 11.

This became the guiding principle in the shift from private to public prosecutions in England, and in North American systems of criminal justice. By the middle of the nineteenth century the office of the Director of Public Prosecutions was established in England. The effect of these changes "was to largely remove the victim from the criminal justice system".[45]

In Canadian jurisdictions the role of the Director of Public Prosecutions has been taken by Crown counsel, who are presumed to represent the interests of the state, "above and beyond the individual victim in an unbiased, impartial manner".[46] The principle that a crime is an offence against the state, and not merely a wrong done to an individual, has been clearly stated in several Canadian courts over the years.[47]

Unfortunately, in the past, the attitudes of the justice system towards victims has been likened to that of a psychopath who is unable to respond to the human quality of suffering.[48] It has also been suggested that categorizing a person as a "victim" can lead to their treatment in an inhumane, unfeeling way, where they are regarded as objects of paternal or patriarchal benevolence.[49]

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[45] Ibid., at 12.

[46] Ibid., at 13.

[47] See for example; R. v. Strong (1915), 43 N.B.R. 190, (S.Ct. N.B. App. Div.); Boucher v. The Queen [1955] S.C.R. 16; and R. v. Dourocher (1964) 42 W.W.R. 396. (B.C.C.A.)

[48] D.N. Weisstubb, " Victims of Crime in the Criminal Justice System" in From Crime Policy to Victim Policy, ed. E.Fattah, (London: McMillen Press Ltd., 1986), at 195. Psychopaths have been defined as: "lacking in the capacity to form independent judgments or relationships."

The modern justice system in Canada is complex and it is difficult to locate victims of crime within its framework. It is only recently that the trend towards recognition of victims' needs by the criminal justice system began. For example, the first Crimes Compensation scheme was enacted by the Province of Saskatchewan in the mid-1960's. In the early 1980's, the Canadian Federal-Provincial Task Force on Justice for Victims of Crime was organized and submitted recommendations in its Report.[50]

The Task Force limited its investigation to what it termed "traditional crime" victims and came up with three categories. The first category included crimes where there was a direct and identifiable victim. The second category involved crimes where there was a direct and potentially identifiable perpetrator. In the third category, the Task Force was concerned with those forms of criminal victimization where information was available about the consequences of the particular crime and its effect on the victim. It is noteworthy that the Canadian Task Force felt that it should not concern itself with criminal activities

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[49] Ibid.

[50] Canadian Federal-Provincial Task Force on Justice for Victims of Crime Report (Ottawa: Solicitor General, 1983).

"where moral and legal issues of assessing responsibility and guilt are difficult to resolve, e.g. **crimes against the environment**"[51]. It went on to say that while it recognized that other forms of crime were just as harmful, nevertheless it felt that enough knowledge could not be obtained **"to identify the precise actual victims of corporate pollution or to establish the exact nature and loss they suffer"**.[52]

Thus, although the Canadian Task Force was attempting to recognize the rights of victims of crime, a distinction was being drawn between victims of "traditional crimes", and the victims of environmental pollution, based solely on the alleged difficulty of trying to identify a culprit and specific victims in the latter instance.

The Task Force went on to identify the needs of criminal victims. Interestingly, the broad types of needs identified by the Task Force could easily be adapted to the needs of pollution victims. In its Report, for example, greater consideration of victims' needs was advocated because of: the specific concern by the public for the plight of victims and witnesses; the public's desire that something be done about crime; the interest of members of the public and private agencies in maintaining and enlarging their territory; and, the criminal justice system's interest in victims.[53]

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[51] Ibid., at 12. (emphasis added).

[52] Ibid. (emphasis added).

This "interest" of the justice system in the victim, is unfortunately more pragmatic than benevolent. The system, in effect, may use the victim as an instrument through which criminal proceeding is commenced. The scope of the victim's involvement in the initial phases of the arrest and the laying of an information is largely defined by procedural considerations.[54] If required to give evidence at a preliminary hearing or at trial, the victim may be of assistance to the court in providing information regarding the circumstances of a crime.

It is only in the final step of the process (in the matter of sentencing) that a victim's impact statement may reveal the effect the crime has had on the victim and his or her well-being. Where such an effect has been quite detrimental, the court may use this knowledge to increase the severity of the sentence of an accused; an action that does little to lessen the effect of the crime upon the victim.

Prior to the formation of several specialized victim's groups, such as M.A.D.D.[55] and P.A.I.D.[56], the Canadian criminal justice system's focus centred on the offender. The legal protection of individual "rights" within the system did not address victims "rights", but rather related to the apprehension, arrest, and subsequent rehabilitation of criminals.[57]

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[53] Ibid., at 19.

[54] Hagen, supra, note 42 at 14.

[55] Mothers against Drunk Drivers.

[56] Parents Against Impaired Drivers.

It is only since approximately 1985 that restitution, by the offender to the victim, has become a matter of regular consideration by the courts. Restitution, or the payment by the criminal to the victim, is allowed in the Criminal Code as a term of a probation order or as an order of the court in sentencing. These restitution sections have been implemented quite sparingly by the courts, and then only regarding property damage. They are rarely used to recompense a victim of crime who suffers personal injury.[58]

(b) Compensation and Restitution of Victims within the Criminal Justice System:

The philosophy of restitution is that the offender should pay for the damages caused to a victim as a result of a criminal offence, and has been considered by some as a mitigating factor in sentencing an accused.[59] In 1974, the Law Reform Commission of Canada proposed that restitution become a basic principle of criminal law. They suggested that while restitution and compensation to victims of crime were not the chief aim of the criminal law, nevertheless, studies and proposals demonstrated that restitution to victims should be a legitimate and important aspect of criminal law sentencing.[60] This philosophy was acknowledged and underlined in the 1984 government policy paper on sentencing.[61] In research conducted by the Canadian Sentencing Commission in 1988, it was concluded that restitution was an area which required closer examination, since there were few established principles governing its application.[62]

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[57] R. Abell, "A Federal Perspective on Victim Assistance in the United States of America", in Crime and its Victims, ed. Emilio C. Viano, supra note 2, at 214. In certain cases, the Criminal Code of Canada allows victims to be compensated by the offender for losses or damages suffered to property. See: Criminal Code, R.S.C. 1985, c. C-46, section 727.3 which deals with the Priority of Restitution, and section 737(2)(e) which makes Restitution part of a Probation order.

[58] Burns, supra note 1 at 11.

Orders for compensation for loss of property incurred as the result of a criminal offence may not, initially, appear to be considered viable sentencing options available to a court in criminal cases.[63] Courts may consider restitution, but are currently not using this remedy to any great degree, primarily because they continue to perceive themselves in the traditional role of attempting to achieve deterrence or punishment of offenders.[64] Nevertheless, restitution orders are considered by some contemporary legal writers to be as much a part of sentencing as imprisonment, fines and probation.[65] Other writers, in proposing a revised approach to compensation of victims of crime, suggest an increased use of restitution orders by the courts that amounts to the presumption that they should be considered in almost every case, and that failure to pay restitution should be treated at least as seriously as failure to pay fines.[66] This approach is based on the premise that too much attention is paid to punishment and not enough consideration given the victim in the criminal process. It is an attempt to reorient the existing system towards a retributive ideology.[67]

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[59] A.M. Linden, "Restitution and Compensation for Victims of Crime and Canadian Criminal Law," in Community Participation in Sentencing, ed. Law Reform Commission of Canada, (Ottawa: Ministry of Supply and Services, 1976), at p.10-11.

[60] Law Reform Commission of Canada, Restitution and Compensation; Fines, Working Papers 5 & 6 (Ottawa: Information Canada, 1974), p.1.

[61] See, Bill C-19, The Criminal Law Reform Act of 1984.

[62] See, A Profile of Canadian Alternative Sentencing Programmes: A National Review of Policy Issues (Ottawa: Department of Justice, 1988), at 26-30.

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[63] See, D. Greer, Criminal Injuries Compensation (London: Sweet & Maxwell, 1991), at 168-185, for an incisive examination as to the nature and scope of Court ordered compensation for personal injuries in the U.K.

[64] K.W. Fiske, " Sentencing Powers and Principles," in From Crime to Punishment, eds. J.E. Pink & D. Perrier (Toronto: Carswell, 1992), p. 242.

[65] Ibid.

[66] J. Shapland, J. Willmore, and Peter Duff, Victims in the Criminal Justice System, ed. A.E. Bottoms (Aldershot:Gower Publishing, 1985), at 186.

Why then is restitution not an adequate remedy to compensate victims? Although restitution is a monetary penalty made available to victims of crime in Canada through the criminal process, it has been pointed out that the rehabilitation of the offender and not the welfare of the victim is the primary reason to order restitution.[68] Also, the limited use of the Criminal Code restitution provisions arguably relates to the concept of the criminal process as a fair and impartial, public rather than private, process, and it may be perceived that:

> ...Adopting a practice of regularly seeking restitution for the victims would raise a conflict of interest, it would contradict the Crown prosecutor's position before the court, and would derogate from the appearance of justice.[69]

Under this view, prosecutors are seen as having the role of representing the state in an impartial manner, rather than representing the victim.

Furthermore, compensation or restitution may give the appearance that the criminal justice system is being used as a collection agency for debts owed to the victim by the accused. In addition, the patent inadequacy of restitution as a court-ordered method for allaying the deprivation suffered by crime victims was pointed out by one of the pioneers of crimes compensation programs in Britain, a quaker, Ms. Fry. She argued that in many cases the offender was not apprehended, or if caught, not convicted, so that no restitutive possibility might exist.[70] It has also been noted that offenders rarely have sufficient resources to compensate victims.[71] Additionally, the routine use of restitution may create an expectation of mitigation in the mind of the offender, and also a false hope of recovery in the victim.[72] For all these reasons, restitution is not a particularly suitable way to compensate victims.

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[67] Ibid., at 181.

[68] Hagen, supra, note 42 at 177.

[69] K.L.Chasse, "Restitution in Canadian Criminal Law," (1977) 36 Criminal Reports New Series, 201, at 203-204.

The current sections of the Criminal Code that deal with restitution and compensation by an offender to a victim, are (apart from probationary orders), contained in sections 725, 726, and 727.[73] Some of the, as yet, unproclaimed subsections of these sections would make orders for restitution available during sentencing if "applicable and appropriate in the circumstances".[74] Perhaps one of the most interesting of these subsections, in terms of philosophy of the legislation that is currently in force, is Section 727.9 (4) which deals with the Victim Fine Surcharge and reads:

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[70] G.Geis, " Crime Victims Practices and Prospects," in Victims of Crime, Problems, Policies, and Programs, eds. A. Lurigio, W. Skogen, R. Davis, (Newbury Park: Sage Publications, 1990), at 264.

[71] M.S.Greenberg & R.B.Ruback, After the Crime, Victim Decision Making, (New York: Plenum Press, 1992), at 197.

[72] J.F. Klein, " Revitalizing Restitution: Flogging a Horse that may have been Killed for Just Cause." (1977) 20 Crim. Law Quarterly. p. 383-408.

[73] R.S.C. 1985, c.27 (1st Supp.), s 158, s159, s.160; Note: s.727 [Repealed R.S.C. 1985, c.27 (1st Supp.), s 160; Note:Sections 727 to 727.8 re-enacted by R.S.C. 1985, c.23 (4th Supp.), s.6 is to come into force on proclamation.

> A victim fine surcharge imposed under subsection (1) shall be applied for the purposes of providing such assistance to victims of offences as the Lieutenant Governor in Council of the province in which the surcharge is imposed may direct from time to time.

These proposed and currently active sections seem to indicate that the legislative branch of the criminal justice system has begun to accept that compensation of victims is an active and important ingredient of justice.

In 1978, prior to the appearance of these new sections in the Criminal Code, the Supreme Court of Canada ruled in the Zelensky case,[75] that damages for injuries or other losses occasioned as the result of a criminal act should be dealt with as a matter of civil rights, and pursued by way of civil litigation. It was held by a majority of six to three judges, that section 725 of the Criminal Code[76] was intra vires, being in pith and substance part of the sentencing process. However, the court held that an order for compensation should only be made with constraint and caution, and in particular should not be made where there is any serious contest on legal or factual issues, or on whether the person allegedly aggrieved, is so in fact.

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[74] Section 725, states that: "Where an offender is convicted or discharged under section 736 of an offence, the court imposing sentence on or discharging the offender shall, on application of the Attorney General or on its own motion, in addition to any other punishment imposed on the offender, if it is applicable and appropriate in the circumstances, order that the offender shall, on such terms and conditions as the court may fix, make restitution to another person as follows:
(a).......; or

(b) in the case of **bodily injury** to any person as a result of the commission of the offence or arrest or attempted arrest of the offender, by paying to the person an amount not exceeding all pecuniary damages, including loss of income or support, incurred as a result of the bodily injury, where the amount is readily ascertainable.(emphasis added).

[75] R. v. Zelensky [1978] 2 S.C.R. 940

An examination of some recent judicial decisions indicates that the courts still do not fully accept the idea that restoration of victims, as opposed to offender rehabilitation, should be a sentencing objective. In the case of R. v. Ghislieri,[77] the Alberta Court of Appeal held that the mere fact that the dollar amount of a claim for restitution is disputed is not a sufficient basis for refusing to make the order under s.725, where the amount of money involved and the nature of the claim indicate that the claim could be dealt with reasonably and expeditiously.

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[76] Supra, note 73. An order for victim restitution under this section is by virtue of the definition of "sentence" in section 725, appealable as provided under the Criminal Code. However, if the compensation order is filed in provincial court, as provided in subsection (2), it does not put in motion any civil proceedings other than those relating to enforcement. Only the accused, and not the person in whose favour the order was made, has the right of appeal against a compensation order.

[77] R. v. Ghislieri, (1980), 56 C.C.C.(2d) 4.(C.A.)

Similarly, the Ontario Court of Appeal ruled in the case of R. v. Scherer[78] that (unlike a restitution order made as a term of a probation order) an order under section 725 is enforceable as a civil judgment. The court decided that where there is no dispute as to the amounts payable, it would not assist the accused's rehabilitation to permit him or her to put the victims to additional expense by launching civil suits.

In the more recent case of R. v. Fitzgibbon,[79] the Supreme Court of Canada ruled that the financial means of the offender will not always be the controlling factor in determining whether a compensation order should be made. It was in that case held appropriate to make a compensation order against an accused who was an undischarged bankrupt, and a lawyer who had defrauded his clients. The court held that the interests of the victims of the fraudulent acts should be paramount.

Apart from the decision in Fitzgibbon, however, it is apparent from the other cases that the primary focus of the courts was directed to the status of the offender, and the objectives of sentencing. Thus, while the victim's concerns are not irrelevant to the integrity of the criminal process, it would appear that in Canada, restitution must remain offender-oriented and consistent with the promotion of rehabilitation of the offender, deterrence and protection of the public.[80] Furthermore, all of the foregoing cases involve restitution for damage to property, or monetary loss.

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[78] R.v. Scherer(1984), 16 C.C.C. (3d), 30. (C.A.)

[79] [1990] 1 S.C.R. 1005

In the case of probation orders, as was the situation in R.v.Groves[81], the court indicated that the old section 663 of the Criminal Code related to actual loss only:

> ....had Parliament intended to confer upon the criminal Courts a remedial power to order an offender to compensate a victim for pain and suffering, it would have set out its intent in clear language. Indeed, it seems to me, that the word " actual" as used in the section suggests that Parliament intended to restrict its scope to those damages that are relatively concrete and easily ascertainable and as such exclude such vague, amorphous and difficult matters as " pain and suffering". Consequently, I am of the opinion that an order under s.663(2)(e) should be restricted to those damages in the nature of special damages.[82]

Thus, apart from Criminal Injuries Compensation Board activities[83], little or no consideration has been given by the justice system to the suffering of the victim of crimes, or to compensating them for their injuries, within the context of the sentencing process and any associated requirement of specific repayment to the victim by a perpetrator.

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[80] Hagen, supra, note 42 at 181.

[81] (1977), 37 C.C.C. (2d) 429. (H.Ct.)

[82] Ibid.,at 442, per Driscoll J. of the Ontario High Court. For a contrary view, see R.v.A. (1974), 26 C.C.C.(2d) 474, where Haines J. ordered a restitutionary payment to compensate the victim for damaged clothing, bruising and emotional trauma.

[83] The workings of the various Compensation Boards across Canada will be discussed *infra* in Chapter 3.

To summarize, it is apparent that compensation and restitution are now receiving some consideration by the courts, but mostly in the area of property damages. Since victims of pollution and victims of violent crime receive personal injuries (and only incidentally may suffer personal property damage) these remedies are not sufficient to fully compensate them for their suffering. The pain and suffering undergone by a victim is one of the major areas that need to be considered for compensation, but restitution as a method of compensation appears to have been drafted by legislators with a property damage orientation. Thus, the legislation, due partially to its subsequent interpretation by the courts, remains inadequate to address the issue of pain and suffering or personal injuries.

A final and perhaps most important question, regarding the use of restitution as a means of dealing with victims' claims, relates to the interaction of remedies. To "what extent should compensation in a criminal context be relevant to compensation in a civil context and vice versa"?[84] The court in Zelensky decided that compensation could be made in a criminal case but only as part of a sentencing process and even then with constraint. It is with this question in mind, therefore, that the tort system should be examined from a "default" position as another possible means available to the victim of crime to attempt to obtain compensation.

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[84] This question was raised in relation to the interaction of remedies in the case of Hamilton and Hamilton v. Bushnell and Hamilton (1980), 113 D.L.R. (3d) 498 (N.S.C.A.).

C: Victims of Pollution and the Law of Tort

Liability and compensation, in the case of victims who sustain personal injuries as a result of another's fault or negligence, may be dealt with through the medium of tort law. It is widely held that the primary function of tort law is to compensate the injured. Perhaps this is placing the cart before the horse, since others have pointed out that in the area of tort and compensation law in Canada there has been:

> a conspicuous lack of functional scholarship- that is, looking first at forms of conflict within society , the interest at stake in these conflicts, and the harms caused, and only then asking whether tort law has a legitimate or useful role in their solution.[85]

At the risk of begging this question, it is proposed in this section to examine briefly the compensatory function of tort law as it is found in those causes of action by which a victim may decide to commence litigation if injured by environmental pollution. Such a plaintiff might attempt to obtain compensation under one or a combination of different types of tort, such as nuisance, negligence, trespass or the doctrine of strict liability as set forth in Rylands v.

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[85] J.P.S. McLaren, " Theoretical and Policy Challenges In Canadian Compensation Law", (1985), 23 Osgoode Hall Law Journal, 609.

Fletcher.[86] Rather than examining each one of these torts separately, the main question of interest is whether the tort system in general is designed to accommodate potential environmental pollution injury victims, including victims of environmental offences.

Theoretically, it is possible to demonstrate that the tort system has many advantages over other systems of compensation. Some of the apparent advantages of the system in the context of personal injury situations include: (1) the independence of the plaintiff to commence an action on his or her own behalf; (2) many defendants can be joined to render compensation for injury under the doctrine of joint and several liability[87]; (3) there is no limit to the amount of damages that could be awarded for any particular injury; and (4) the plaintiff has control through counsel over legal strategy and the proceedings.

In the matter of tort remedies for environmental plaintiffs there is arguably another advantage. It may well be the case that environmental defendants are more affluent than defendants in criminal physical assault cases. The victims in traditional criminal cases can also bring an action in tort against the perpetrator of the crime, but do not often have a chance of being able to collect any judgment that might be awarded due to the impecunious circumstances of the majority of offenders.[88] The capacity to bear loss is one factor that courts have weighed in rendering their verdict in tort cases, and since the defendant in many environmental tort cases is often an industrial corporation, or a commercial enterprise, the likelihood of their solvency is higher.[89]

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[86] (1868) L.R. 3 H.L. 330

[87] J.G.Fleming, The Law of Torts, 7th.ed. (Sydney: The Law Book Company, 1987), at 231. This doctrine in effect says that where one or more defendants may be liable, the all or any one of them could be responsible for compensating the plaintiff.

Notwithstanding the foregoing "advantages" of tort, it has many drawbacks as a possible avenue of compensation, particularly in the area of environmental injury or sickness. In the opinion of two learned authors, "only a very small proportion of injury victims receive tort compensation"[90] and in practice, "these advantages are largely illusory".[91] In his excellent survey of Canadian tort law, Professor Linden points out that while one of its primary functions is to compensate, in actual fact only "the deserving win damages in tort".[92] Another legal authority makes the argument that:

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[88] P. Atiyah, Accidents, Compensation and the Law, 4th. ed. (London: Weidenfeld & Nicholson, 1987), at 291.

[89] W.L.Prosser & W.P.Keeton, Handbook on the Law of Torts, 5th. ed. (St.Paul: West Pub. Co., 1984), at p.597.

[90] Atiyah, supra, note 88 at 11.

[91] J. Swaigen, Compensation of Pollution Victims in Canada, A Study prepared for the Economic Council of Canada 1981, (Ottawa: Supply and Services Canada, 1981), at 26.

[92] Allen M. Linden, Canadian Tort Law, 4th.ed.(Toronto: Butterworths, 1988), p. 3.

> There are certain wrongs that tort law does not encompass. Nowhere are these wrongs more apparent than in the area of environmental harms.[93]

For example, the basic premise on which tort law operates is that of the "fault principle".[94] When specific causes of actions are examined, circumstances may arise (due to, for example, scientific uncertainty in cause/effect relations) where the plaintiff cannot prove beyond a balance of probabilities that the defendant was responsible for the injuries sustained. Admittedly, these tests may also be applied in other forms of compensation systems, but as we shall discover in Chapters 3 and 4 of this thesis, the standard of proof is not as exacting as in tort litigation.[95] The problem of "causation" renders uncertain the outcome of any trial.[96] There are no guarantees a plaintiff will obtain judgment, regardless of how persuasive counsel may be, or how "obvious" (to the plaintiff) that the claim has merit.[97]

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[93] P.J. Strand, " The Inapplicability of Traditional Tort Analysis to Environmental Risks: The Example of Toxic Waste Pollution Victim's Compensation" (1982-1983), 35 Stanford Law Review, 578.

[94] T. Ison, The Forensic Lottery, (London: Staples Press, 1967) at 4.

[95] See, infra Chapter 3 at 121, and Chapter 4 at 149-150.

[96] See, for example J.G. Fleming, " Probabilistic Causation in Tort Law," (1989) 68 Can. Bar Rev. 661.

Other objections to the tort system as a method of compensation for environmental victims are based on the premise that many of the causes of action such as trespass, nuisance and negligence are not suitable for dealing with claims of mass tort litigation.[98] Additionally, single plaintiff actions encountered the problem of latency in disease manifestation.[99]

It has also been argued that providing compensation for victims of pollution should be merely a secondary role for courts, and that their primary purpose should lie in the area of protecting the environment and bringing technology under control.[100] Furthermore, the operational costs of the tort system have been estimated at twice the cost of operating third party liability insurance systems, from which most of the money paid to victims is derived.[101]

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[97] For a good criticism of the tort system generally with respect to compensation: See, T. Ison, " The Politics of Reform in Personal Injury Compensation," (1977) 27 U. Of Toronto Law Journal, p.385-402; D. Estrin, J. Swaigen, and M.Carswell, eds. Environment on Trial, 2nd.ed. (Toronto: Canadian Environmental Law Research Foundation, 1977}; and E.Swanson & E.Hughes, The Price of Pollution, infra, note 103 at 3-11.

[98] See, infra Chapter 4 at 163, regarding the CERCLA Study Groups' objections to tort actions for environmental victims.

[99] Ibid.

[100] Swaigen, supra, note 91 at 26.

[101] Ibid.

In the matter of cost, however, it is not merely collective cost, but individual cost that make the tort system not entirely "user friendly". The expense involved in commencing litigation is one of the prime stumbling blocks for prospective plaintiffs.

The cost of bringing a civil action[102] to trial can be prohibitive for the ordinary citizen.[103] For example, in many circumstances the testimony of expert witnesses is required, and they have to be paid for their time and expertise. An additional expense can be the gathering of technical evidence necessary to prove that a wrong against the plaintiff was committed by a particular named defendant.

Another discouraging factor for a prospective plaintiff is the delay involved in arriving at either settlement, or in actually bringing the case to court for trial. One main cause of delay, especially in the more serious type of injury cases, is the difficulty in obtaining medical opinions as to the exact nature, or cause of the plaintiff's condition, and the prognosis as to the effects the injuries may have and prediction of the time period within which the victim's condition may stabilize.[104] In addition, the sheer volume of trials being scheduled for the courts may entail a long waiting period for a particular action to be heard.[105]

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[102] Legal Thesaurus/ Dictionary, W.P. Statsky ed. (St. Paul: West Publishing Co., 1985), at 135. " Civil action, is an action to enforce private rights. A lawsuit involving either (a) one private party suing another private party or (b) a private party suing or being sued by the government, which does not directly involve a criminal prosecution."

[103] E. Swanson & E.L. Hughes, The Price of Pollution, (Edmonton: Environmental Law Centre, 1990), p.3.

One other area of difficulty for the prospective plaintiff in tort is in proving the amount of damages suffered because of personal injury. The quantum of damages payable is an objective assessment of the monetary value of the injury, and is usually based on previous awards by the courts for similar types of injuries. As a result a plaintiff may, in some cases, be deprived of full compensation by the courts for certain heads of damage such as pain and suffering. A good example of this type of outcome in the environmental context is the case of Friesen et al. v. Forest Protection Limited.[106]

The plaintiffs, (a doctor/farmer, his wife and son) claimed that they had suffered personal injuries and general damages to livestock as a result of their property being sprayed by the defendant with a liquid pesticide consisting of a fenitrothion formulation. The Supreme Court of New Brunswick found that the plaintiffs had indeed suffered some injuries from their exposure to the spray, but only of a minor physical and psychological nature. The court ruled that general damages must be essentially confined to compensation for "relatively minor physical injuries",[107] and nothing was awarded for any psychological damage.[108] The outcome was that the plaintiff and his wife received only $500.00 dollars each, and the son $300.00 dollars in general damages, which sums included compensation for loss of enjoyment of their property. The physical injuries in this case may have been of a minor nature and thus have justified the small amount of the awards. Nevertheless, the reasoning of the court indicates the reluctance to award damages for pain and suffering of a psychological nature. In addition one must also consider the costs incurred by the plaintiffs in bringing the action, which would far outweigh the general damages awarded by the court.

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[104] Atiyah, supra, note 88 at 273.

[105] The Trial Coordinator's office of the Court of Queen's Bench, Judicial District of Edmonton, advised that the average waiting period for a week long trial was " About 7 months" (By telephone inquiry, June 8/1993)

[106] 22 NBR (2d) 146.(NBSC).

In Andrews v. Grand & Toy (Alta.) Ltd.[109] the Supreme Court of Canada said that damages for personal injury was an area of the law that "cried out" for legislative reform.[110] In another injury case, the Manitoba Appeal Court said that:

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[107] Ibid., at p.156. (emphasis added).

[108] Ibid., at p. 156-157. The plaintiff in this case happened to be a Doctor, and his complaint of dizziness and fatigue suffered as a result of the spraying (which he claimed resulted in his diminished capacity to conduct research and to operate the farm) was in the view of the court, "not adequately related to the spraying".

[109] [1978] 2 S.C.R. 229

[110] Ibid., per Dickson J. at 235.

> ... it makes no sense at all to have in place a modest and predictable system of compensation for injured workers and victims of crime while, at the same time, tolerate a risky, difficult and wholly irrational system of Court sponsored assessments for persons injured by reason of a motor vehicle upon a highway. It is all the more nonsensical when such persons may receive no compensation at all or compensation away out of proportion to that received by injured workers and victims of crime.[111]

In some early cases concerning the deaths of young children, negligence actions were dismissed because no loss had been established by the plaintiff.[112] Fortunately, the current law in this area seems to be more humane and as stated in the case of Thornborrow v. MacKinnon,[113] in the loss of a child, the award to parents "should be substantial".[114]However, since the parties had agreed to quantum prior to the judgment, no value on the child's life was stated in dollars by the court. Cases such as Friesen, Thornborrow, Andrews and MacDonald raise doubts about the adequacy of tort as a means of achieving a satisfactory level of compensation.

In many other cases of tort litigation studies revealed that solicitors often negotiate a settlement out of fear of the possibility that a court may find contributory negligence, or "bearing in mind the hazards of litigation" have opted to settle rather than risk obtaining a low monetary judgement for their clients.[115] For all these reasons, environmental victims may find the tort system an inadequate method of compensation.

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[111] MacDonald v. Anderson et al., [1982] 3 W.W.R.385.(Man.C.A.).

[112] See, A.M. Linden, Canadian Tort Law, 5th ed.(Toronto: Butterworths, 1993), at 95, where he cites many early cases including: Cashin v. Mackenzie,[1951] 3 D.L.R. 495(N.S.) (five year old); Alaffe v. Kennedy (1973) 40 D.L.R. (3d) 429 (N.S.)(four-month-old).

[113] (1981), 16 C.C.L.T. 198. (Ont.S.Ct.)

[114] Ibid., at 199.

Even where a statutory remedy has been created, there are problems for the environmental victim. A recent Canadian example of an unsuccessful attempt by a victim of an environmental offence to obtain compensation for personal injury is seen in McCann v. Environmental Compensation Corporation.[116] The action was brought as a statutory tort. Under the Ontario "Spills Bill",[117] if the act is breached, certain classes of injured persons[118] may apply for compensation to the Environmental Compensation Corporation

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[115] See, D.Harris et al. Compensation and Support for Illness and Injury (Oxford: Clarendon Press, 1984), at 123, where examples are given for the reasons that solicitors are more inclined to negotiate a settlement for accident victims rather than go to trial.

[116] (1990) 5 C.E.L.R. 247 (Ont. C.A.)

[117] The basis for the application was s.91(1)(a)(i) of the Ontario Environmental Protection Act, as am. S.O. 1988, c.54, s.37.

[118] See, D. Estrin, Handle with Caution (Toronto,Carswell, 1986),at 203 " Generally the ECC has the statutory authority to provide compensation for loss resulting from a spill or costs and expense in carrying out an order or other duty to cleanup; however, the general grant of statutory authority to make payments in respect of spills of a pollutant is limited to persons who are members of a class prescribed by the regulations and meet the conditions prescribed by the regulations".

(ECC).[119] The case illustrates some of the problems that are encountered by a victim in bringing suit for compensation even where a statutory remedy is available. These problems include: the difficulty in proving causation, complying with statutory requirements, and the uncertainty of outcome.

McCann alleged that because of petroleum spills, he had suffered severe allergic reaction. He claimed $10,000,000 in damages from the Environmental Compensation Corporation for personal injury and economic loss as a direct result of the spill, as required under s.91(1)(a) of the Environmental Protection Act.[120] The Environmental Compensation Corporation denied the application for lack of evidence that personal injury and economic loss were the direct result of an identifiable spill. McCann applied to the High Court of Ontario for a determination of his right to compensation pursuant to s.96(1) of the Environmental

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[119] The Environmental Compensation Corporation (ECC) is an agency of the Ontario Ministry of the Environment, which provides compensation to persons who have suffered loss or damage as a direct result of a spill of a pollutant. The ECC's authority is derived from Part IX of the Environmental Protection Act, R.S.O. 1980, c. 141 as amended. "Loss or damage" is defined in s. 87(1), to include not only **personal injury**, loss of life and loss of use or enjoyment of property but also pecuniary loss, including loss of income.(emphasis added).

[120] S.O. 1988, c.54, s.37, which states in part that: " Upon application, the corporation shall authorize payment in respect of a spill of a pollutant to,... any person who has incurred loss or damage as a direct result of ,... the spill of a pollutant that causes or is likely to cause an adverse effect,... if such person, owner of the pollutant or person having control of the pollutant is a member of a class prescribed by the regulations and meets the conditions prescribed by the regulations."

Protection Act, and the High Court dismissed the application. An appeal to the Ontario Court of Appeal resulted in the denial of an application for leave to produce new evidence, on the basis that it did not establish that the appellant suffered the injury and loss as a direct result of the spill. The court also ruled that the appellant had failed to establish that, with due diligence, the subject evidence could not have been introduced at the time of the filing of the original application with the ECC. Another grounds for dismissal was the fact that the spill complained of had occurred prior to the date of proclamation of Part IX of the Environmental Protection Act. The damages claimed seem inordinately high but the case is illustrative of problems that can arise in statutory tort.

CONCLUSION:

The requirements to become a recognized "victim" are amply met by the victims of environmental crimes. They can be compared on an equal basis to victims of traditional crimes of violence, and as such are deserving of a place in the criminal justice system. The status of victims within that system in Canada has only recently become recognized as important and the remedies that the system theoretically provides are both seldom used and inadequate to provide compensation for anything more than provable property damages.

The tort system is also an unsatisfactory method through which victims of violence might obtain compensation for their injuries. Criminals are not usually affluent enough to satisfy monetary judgements that may be awarded against them. Although the offender in environmental cases may indeed be solvent, the expense involved to maintain a legal action is usually prohibitive for most prospective plaintiffs, and there are many other deficiencies associated with this remedy. Even for statutory torts, as we have seen in McCann, the remedy can be problematic. Since neither restitution or tort methods of compensation are satisfactory, it is necessary to examine in detail the system of crimes compensation, to discover if it could provide a recourse for potential victims of pollution. This will be the objective of the following chapter.

CHAPTER 3

VICTIMS OF ENVIRONMENTAL CRIMES & CRIMES COMPENSATION SCHEMES:

Introduction

Up to this point, we have seen that there is a potential for people to sustain injury, sickness or disease as the result of environmental crimes. Victims may be created who are, at least in sociological terms, almost indistinguishable from victims of traditional crimes of violence against the person. Even if environmental victims were to be treated like victims of crime, however, we have discovered that the courts are reluctant to pursue restitution through sentencing as a method of compensating victims of crime.

While criminologists and legal scholars advocate restitution as part of sentencing and as a useful tool in the process of rehabilitating the offender,[1] rarely will an award be made for pain and suffering by courts under this head. The fear remains that the justice system may be used improperly as a mere collection agency to settle private grievances and outstanding debts.[2] Thus if ordered at all, usually restitution is ordered for provable, purely proprietary losses. It is thus less than useful for environmental victims.

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[1] J.Hagen, Victims Before the Law, (Toronto: Butterworths, 1983), at 177.

[2] Ibid., at 171. Another problem associated with restitution is the fear of reprisal by the offender against the victim. Additionally, it is thought that prosecutors may become overzealous in their requests, so that it may be impossible for an offender to comply with an "unrealistic" restitution order made under the Criminal code.

We have also examined, as a possible source of compensation of environmental victims, common law actions and statutory actions in tort. These methods have several drawbacks for most victims. The main disadvantages are the cost of bringing any tort action and the uncertainty of the outcome. Additionally, the time delay in bringing the matter to trial, the cost of expert witnesses, the gathering of scientific evidence and the difficulty in naming the "right" defendant are some of the other obstacles in the path of the plaintiff.

This chapter examines crimes compensation schemes as an alternate method of compensation for environmental victims of crime. Most crimes compensation legislation, in either its preamble or in the stated reasons for its existence, purport to be for the benefit of victims of violent crimes. Nowhere in any of the acts is the term "crime of violence" defined. Rather, specific crimes as enumerated in the Criminal Code are placed in a list of scheduled offences forming part of the acts.[3] Persons injured as a result of a scheduled offence are eligible to apply to an administrative tribunal for compensation. The existence of and the stated purpose for such legislation is that it is "designed to alleviate the pecuniary losses suffered by victims of **violent crime**".[4]

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[3] With the exception of Ontario. See, Hagen, supra, note 1 at 187.

Victims of environmental crimes were not in the contemplation of those who drafted the original crimes compensation acts, which were primarily aimed at meeting the needs of victims of traditional crimes of violence against the person. The basic problem is that the legislature has created a new "category" of environmental crime that is not included under any of the "schedules" of offences as set forth in most of the Crimes Compensation Acts,[5] with the possible exception of the crime of causing death by criminal negligence. It is necessary, therefore, to discuss two preliminary questions. The first is why victims of violence should be compensated in preference to any other type of victim. Should victims of crime be treated any differently than victims of motor vehicle accidents, for example? An answer to this question may lie in an examination of the rationale behind crimes compensation schemes, a concept that will be examined in detail. The second question is whether environmental victims could be considered as "victims of violence" under the existing schemes. One must determine what constitutes a violent crime and decide if the traditional concept might be broadened to include environmental crimes.

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[4] Criminal Injuries Compensation in Canada, (Ottawa: Department of Justice, 1986), p. 2. (emphasis added).

[5] See for example in Alberta, the Crimes Injuries Compensation Act, R.S.A. 1980, c. C-33, Schedule 1, where the compensable crimes are listed under their relevant Criminal Code section and description of the offence; they include such violent crimes as, murder, manslaughter, assault causing bodily harm,etc.

In an attempt to answer the first question it is helpful to look at the rationale of the compensation acts, to see if the idea of including environmental offences and victims fits within the underlying rationale for compensating victims of violence. If so, then it can be argued that victims of environmental crimes should be included within the ambit of such schemes.

A. The Rationale Behind Crimes Compensation Schemes: Is it Applicable to Victims of Environmental Crimes?

> From the start, crime victim programs have been perplexed by an inability to settle upon a satisfactory rationale for their existence.[6]

In Canada and the U.S.A. it has been suggested that there is a "right" to compensation, based on a "general expectation of justice and a general expectation of recompense for injuries and loss".[7] While this may be overstating the actual Canadian position, it does reflect perhaps a difference between the North American and early

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[6] G.Geis, "Crime Victims Practice and Prospects", in Victims of Crime: Problems, Policies and Programs, eds. A.Lurigio, W. Skogan & R Davis (Newbury Park:Sage Publications,1990) 251 at 264.

[7] L.Friedman, Total Justice (New York: Russell Sage Foundation, 1985) p.5.

British approach to the question of whether compensation of victims of crime should be mandatory.

A committee set up by the Home Office in England rejected the idea that victims had a "right" to compensation, on the basis that it would be impossible for the state to protect all its citizens from violent crime. The state was seen as gratuitously agreeing to meet the needs of certain victims, without admitting that it was obligated to do so.[8] Only recently has the British compensation program "moved from *ex gratia* status, a benefit from a beneficent state, to a statutory footing".[9] The North American position in contrast has been more "rights" oriented. At first crimes compensation programs were operated on a "means test" basis. If victims could not pay the cost of their victimization they could be compensated from the scheme. Later on this was somewhat reluctantly changed to allow all victims of violence, regardless of economic circumstances, to apply for compensation.[10]

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[8] R.I. Mawby & M. Gill, Crime Victims: Needs, Services and the Voluntary Sector, (London: Tavistock, 1987), p.43. "Compensation will be paid ex gratis. The government do not accept that the State is liable for injuries caused to people by the acts of others. The public does, however, feel a sense of responsibility for and sympathy with the innocent victim, and it is right that this feeling should find practical expression in the provision of compensation on behalf of the community".

[9] Geis, supra, note 6 at 264.

[10] Ibid.

Many jurisdictions have attempted to assist victims of crime by enacting compensation legislation;[11] one of the first in Canada was the province of Saskatchewan in 1967.[12] By 1992 [13] all provinces, the Yukon, and the Northwest Territories had similar legislation in place.[14] In order to understand the rationale for such crimes compensation schemes, it is important to discover what the legislature intended when it inaugurated a particular plan of compensation for victims of crime. The schemes were primarily aimed at fulfilling the needs of victims of traditional crimes of violence, albeit "without regard to, or even investigation into, victim's expressed needs".[15]

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[11] P. Burns, Criminal Injuries Compensation,1st ed. (Toronto: Butterworths, 1980), pp.97-143; A.M. Linden, The Report of the Osgoode Hall Study on Compensation for Victims of Crime, (Toronto: Osgoode Hall Law School, 1968), pp.3-6

[12] Saskatchewan Crimes Injuries Compensation, S.S. 1967, c. 84.

[13] P.Burns, Criminal Injuries Compensation, 2nd.ed. (Vancouver: Butterworths, 1992).

[14] Criminal Injuries Compensation Schemes in Canada,with recent revisions, are as follows; (hereinafter referred to as "schemes" or "scheme"); Alberta, SA 1969 c23, R.S.A.1980 c.C-33; British Columbia, S.B.C. 1972 c17 R.S.B.C. 1979 c.83; Manitoba, S.M. 1970 c.56 R.S.M 1987 c.305; New Brunswick, S.N.B. 1968 c.26 R.S.N.B. 1973 c.C-14; Newfoundland, S.N.1968 c.26 R.S.N. 1970 c.68; Northwest Territories, S.N.W.T. 1973 R.S.N.T. 1974 c.C-23; Nova Scotia, S.N.C. 1975 c.8, R.S.N.C. 1989 c.83; Ontario, S.O. 1971 c.51 R.S.O.1980 c.82; Prince Edward Island, S.P.E.I. 1988 c.67 R.S.P.E.I. 1988 c. V-3.1; Quebec, S.Q. 1971 c.18 R.S.Q.1977 c.1-6; Saskatchewan, S.S. 1967 c.84, R.S.S. 1978 c.C-47; Yukon Territory, S.Y.T. 1975 c.2 R.S.Y. 1986 c.27

[15] J. Shapland, "Victims and the Criminal Justice System", in, From Crime Policy to Victim Policy, ed E.A. Fattah (London: The MacMillen Press Ltd., 1986), 210 at 223.

By attempting to discover the rationale for the existence of crimes compensation schemes, it may be possible to discover whether the environmental victim of violence could now be considered as potentially compensable under such statutes.[16] If they could, then as a matter of mechanics, compensation could be accomplished by government regulation that simply amended the schedule of compensable crimes under each provincial statute.[17]

One must ask, therefore, is crime compensation a "statement" about the victim of crime?[18] What does the state "owe" (if anything) to victims of crime? Which victims are "deserving" of compensation ? (The notion of victim is often confused with the deserving victim or innocent victim in such schemes). Are crimes compensation schemes of any real benefit to a victim, or are they merely a placebo, so that the general public feels good, and falsely believes that both any moral and legal obligations of society are being fulfilled? These are the sorts of questions that must be answered, in an attempt to discover the rationale for the existence of such schemes.

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[16] Burns, supra, note 13 at 95: " The way in which we construe the scheme's role in social history will suggest different extensions of the scheme in the future".

[17] See, the Alberta Act, supra, note 6 which says: s.24(2), The Lieutenant Governor in Council may amend Schedule 1 or 2
(a) by adding to it a description of any criminal offence, and
(b) by deleting from it the description of any criminal offence set out in it.

[18] J. Shapland, J. Willmore, P. Duff, Victims In the Criminal Justice System, ed. A.E. Bottoms (Aldershot: Gower Publishing Company Limited, 1985), 184.

Burns presents four basic groups into which the theoretical justifications for these schemes may be divided. The first of these has been proposed as a "legal" duty owed the victim by the state. The second consists of an alleged "moral" duty to assist victims. Third, there is what has been termed a practical state function, i.e., what legislatures should be doing to reflect the public will. Fourth, such schemes are seen as serving political or social purposes, and as a placatory method of appeasing the citizens sense of outrage at acts of violence perpetrated against innocent victims.[19]

Because we are concerned with the possible inclusion of environmental victims in crimes compensation schemes, it is proposed to examine only the first two rationales (the possible "legal and "moral" obligations of the state) presented by Burns. They will be examined from the traditional victim's perspective, and also in relation to their possible application to the victim of environmental crime. The remaining two groups (public will and political motivation) are not examined because they do not lend themselves to purposeful discussion without actually first conducting a statistical survey as to what the public "will" might be in terms of victims' compensation, which is beyond the scope of this study. Second, it would be purely speculative to outline what might be politically astute alterations to the existing crimes compensation schemes.

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[19] Burns, supra, note 13 at 99.

(a) Does the State have a Legal Duty to Compensate Victims of Crime?

Professor Burns points out that "finding a legal duty to compensate crime victims owed by the state to them is no easy task".[20] Yet he points out that it has been argued that individual personal safety is the responsibility of the state, at least when it comes to acts of violence against the person. The reasoning suggested is that the obligation to the victim of crime rests primarily on society, because it has failed to protect that victim against violence and it alone can effectively compensate the victim.[21] Several arguments can be raised in support of this view, but one must agree with Burns that none are persuasive enough to conclude that the state has a "legal" duty to compensate the victim.

For example, one argument that there is a legal duty owed by the State to victims of violence is that society pays the state, in the form of taxes, to provide police and security services. If these break down, the citizens have been lulled into a false sense of security, and have ceased to carry weapons for self defence. They are thereby rendered helpless when faced with a criminal assault. The State has undertaken to protect the individual and, having failed to do so, has a legal duty to compensate the victim for injuries.[22] This argument is bolstered by the idea that, since the state forbids a victim to take the law into his or her own hands, it is the state's duty to pay damages if it fails to provide adequate protection to the victim.[23]

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[20] Ibid.

[21] D.B. Williams, Criminal Injuries Compensation, (London: Waterlow, 1986), at 3.

None of these reasons (with the exception of the duty of the police to attempt to prevent crime) justify the existence of a legal duty on the part of the state to compensate victims. If it did have such a duty, the ultimate outcome would be that all victims could bring legal action against the state if they were not compensated for injuries received, even where it is not possible for the police to take preventative action. This was the prime reason why the British government denied that the State had a legal duty to victims and made payments only on an *ex gratia* basis.[24]

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[22] Linden, supra, note 11 at 3.

[23] S.Schafer, Compensation and Restitution to Victims of Crime, 2nd. ed. (New Jersey: Patterson Smith Publishing Corporation, 1970), p.150.

[24] D.Harris, et al, Compensation and Support for Illness and Injury (Oxford, Clarendon Press, 1984) at 200. Commenting on the White Paper in 1964 introducing the Government's proposals for compensating victims of crime. "The Government do not accept that the State is liable for injuries caused to people by the acts of others". Justification for the scheme was provided on the basis of the public's sense of responsibility for, and sympathy with the innocent victim.

A similar approach flows from the proposition that the state has a legal duty to compensate crime victims because society creates crime. This argument says that the state has deprived the citizen of the right to bear arms, thus increasing the criminal's ability to commit crime.[25] As Burns points out, this argument fails because there is no proven causal connection between the prohibition of carrying weapons and the injury suffered by the victim.[26]

Another argument is that the state has a legal duty to compensate because society creates criminals.[27] The main proponent of this idea argued that violence is caused by such things as racism, materialism, repression, and by the state's example of using force to accomplish its purposes that cannot be achieved by peaceful methods.[28] This argument, if carried to its logical conclusion, would ultimately make the state responsible for all individual actions and, therefore, responsible to compensate each person for any type of suffering occasioned by the actions of another person. It thus strikes at the very concept of individual responsibility.[29]

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[25] M. Fry, " Justice for Victims", reprinted in (1959) 8 J.Pub.L at 191.

[26] Burns, supra, note 11 at 102.

[27] Ibid.at 100.

[28] M. Wolfgang, "Social Responsibility for Violent Behaviour" (1970) 43 Cal. L. Rev. 5.

[29] Burns, supra, note 11 at 101.

The final rationale put forward in support of a legal duty is that society makes restitution by the offender impossible.[30] This argument has been presented concisely by Lamborn:

> The low percentage of criminals identified, apprehended and found culpable who possess assets sufficient to satisfy judgments renders restitution through civil actions,self-help or as a prerequisite to leniency, inadequate to meet the needs of victims of crime.[31]

His conclusion has been seriously questioned. Using data gathered from several studies, it was discovered that there is a low incarceration rate of criminals convicted of offences for which compensation is frequently ordered, and neither gaoling nor fining affects the ability of the offender to pay restitution in many cases.[32] However, in contrast to these findings, as has been pointed out earlier in this study, other criminologists are of the belief that most criminals are indigent.[33]

Regardless of whether offenders are in a position to compensate victims, the biggest obstacle to this legal notion is a general perception by both the public and the legislature that, in essence, the state has provided the victim with an empty remedy.[34] This perception, says Burns, produces the rather circular reasoning that if the state has provided victims with a remedy (albeit an unenforceable one because of the indigence of the perpetrator of the crime) how can it be held responsible for the victim's inability to enforce the remedy and thereby have a legal duty to compensate?

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[30] Ibid., at 103.

[31] L. Lamborn, "The Propriety of Governmental Compensation of Victim's of Crime" (1972), 41 Geo. Wash. Law Rev. 446 at 458.

[32] Burns, supra, note 11 at 103-113.

[33] See, Greenberg & Rubeck, supra, Chapter II note 71 and accompanying text.

Even if it exists, the concept of legal duty owed by the state, as presented in the foregoing arguments, obviously could not be applied to victims of environmental crimes. These victims do not encounter a face to face attack, where weapons could be wielded in self-defence, but rather are indirectly or directly harmed as a result of an illegal act which exposes them to hazardous pollutants. In summary, no generally available and legally enforceable duty appears to exist between the state and victim of crime, and even if it did it would not be logical to extend such a duty to environmental victims.

Some jurisdictions, including British Columbia, New Brunswick and Quebec, have chosen to adopt the view that the state does have a legal duty to compensate crime victims.[35] However, their statutes have legislated these rights into existence and it does not necessarily follow that a general legal duty exists.[36] Further, even if it were to be argued successfully that the State did have a "legal" duty to compensate victims of crime, the problem still remains as to how, in the absence of a statute, the duty is to be enforced? Obviously, the victim could bring an action in tort, but this method as we have seen is not a satisfactory one.

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[34] There is a legislated duty under the Canadian Environmental Protection Act, R.S.C. 1985, c. 16 (4th Supp.), for a convicted offender to compensate a victim for property loss or damage. However, there is not a legal duty to compensate the victim for personal injury, sickness or disease, spelled out in the statute. It may be argued that an offender does have a moral duty to compensate the victim for pain and suffering, but unfortunately, this duty is not an enforceable one.

If there is not a "legal" duty owed by the State to compensate victims of violence, one must examine the next category referred to by Burns, which is the rationale that the state has a "moral" obligation to recompense a victim of crime. One must question first, whether this duty exist in an enforceable concrete form? Second, if there is a moral duty on the state, and that duty is legislated under the provincial crimes compensation schemes, could the environmental victim be given the same status as traditional victims of crime?

(b) Does the State have a Moral Duty to Compensate Victims of Crime?

In its 1968 recommendation for the implementation of a scheme to compensate victims of crime, the Institute of Law Research and Reform of Alberta said that its recommendations did not rest on any of the "legal" duty concepts. Rather, the Institute based its proposals on the "plight" of the victim and the fact that, "we are in an era when society recognizes many new obligations".[37] Moreover, it is interesting to note (especially in terms of environmental victims) that the Institute considered that compensation should be paid only to victims who suffered physical injuries and not property damage.[38]

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[35] D. Miers, Responses to Victimization (Abington: Professional Books, 1978), at 242.

[36] See Burns, supra, note 11 at 116; commenting on Meirs' arguments at footnote 65 and accompanying text.

This rationale of a social "conscience" or of a moral obligation is also alluded to by Linden as one of the reasons for compensation schemes.[39] He says that most governments wish to reflect the awakened social consciousness of the people and are, therefore, committed to assisting all victims of adversity.[40] This theory ties in with the concept of "consistency" amongst the injured as being a consideration, when it comes to the question of equal justice for all victims. Linden gives the example of the surviving spouse of a person killed in a motor vehicle accident, who may receive a substantial sum of money from an unsatisfied judgment fund. Why, he asks, should the spouse of a person killed by other means, murdered, or (for the purposes of this study) suffering a fatal disease from pollution, not be able to receive a similar sum?[41]

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[37] Institute of Law Research and Reform, Report on Compensation For Victims of Crime, (Edmonton: University of Alberta, 1968), at 5.

[38] Ibid., at 2.

[39] Linden, supra, note 11 at 3.

[40] See also S. Schafer, Compensation and Restitution to Victims of Crime (New Jersey: Patterson Smith, 1970), at p.130: "Just as modern democracy dictates public assistance for the disabled veteran, the sick, the unemployed, or the aged, so the suffering victim of crime should also be assisted by the public."

In attempting to discover whether there is a moral obligation owed by the state to the victim of crime, it is useful to examine some of the stated goals and aims of some of the provincial compensation boards in Canada. In its annual report for 1990-1991, the Saskatchewan Criminal Injuries Board said that one of the principles for compensating victims is that:

> victims should receive, through formal and informal procedures, prompt and fair redress for the harm they have suffered.[42]

Its program description also stated:

> The purpose of the program is to alleviate the financial hardships suffered by victims of violent crimes in Saskatchewan.[43]

Neither of these statements admits that there is a legal duty owed by the state to compensate, but they indicate that there is a degree of suffering, recognized by the state, that should be alleviated out of sympathy towards the victims.[44]

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[41] Ibid., p.3.

[42] Statement of Principles For Victims of Crime. The Saskatchewan Crimes Compensation Board Annual Report (Saskatoon: Sask. Comp. Board, 1991).p.1.

[43] Ibid.

The British Columbia Attorney General declared, in submitting the first annual report of that province's board, that its crimes compensation act was based on an acceptance of the concept that those who suffer injury from crime should be compensated by society.[45] In essence, the rationale was that such compensation does not necessarily have to be made as a legal obligation of the state, but should be made on humanitarian grounds.

The Ontario Criminal Injuries Compensation Board made a more ambiguous statement when it declared that the reasons for its legislation were that the state had failed to ensure the safety of its citizens, and that there existed a sense of responsibility which a humane society feels for victims of crime.[46] This seems to reflect arguments that there is some type of legal duty, as well as a moral obligation.

While there have been several attempts made to discover whether legislators were motivated by perceived legal or moral duties to enact compensation schemes, none have been conclusive. Most notably, the American expert Lamborn

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[44] Burns, supra, note 11 at 116; he suggests that when compensation schemes are considered as being of a moral nature, they are most widely accepted as justified by legislators.

[45] First Annual Report of the Criminal Injuries Compensation Act of British Columbia, (Victoria: Workers Compensation Board, 1972), p. 1.

[46] Fourth Report of the Criminal Injuries Compensation Board of Ontario (Ottawa: Crimes Comp. Board, 1973), p.4.

(relying on an article by Justice Goldberg of the United State Supreme Court)[47] suggested that the victim of a crime of violence had been denied the protection owed by the state and was, therefore, owed a legal duty. Burns, on the other hand, argues convincingly that Justice Goldberg's words are open to either interpretation.[48]

In summary, the most likely rationale for Canadian crimes compensation schemes is that they are seen as a form of social welfare based, in part,
"on the moral duty to aid innocent sufferers of an egregious event that might befall any one of us".[49] As for the question of why victims of crime should be singled out for compensation, the Law Reform Institute of Alberta perhaps come closest to providing an answer by recognizing: first, that the "plight" of the victim arises from the wrongful acts of an element of society; and second, that there is a connection between the social breakdown manifested in crime and injury to innocent citizens. Most certainly, the "plight" of environmental crime victims is brought about by wrongful acts of polluters, which in essence also demonstrate a form of social breakdown resulting in injuries to innocent victims. In addition, we are living in an era

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[47] J.Goldberg," Equality and Government Action," (1964) 39 NYU L. Rev. 205 at 224.

[48] Burns, supra, note 11 at 119.

[49] Ibid., at 95.

when society recognizes new social obligations, and both crimes compensation and environmental protection are amongst these obligations.

Thus, there may well be a moral obligation owed by the state to compensate victims of violent crimes. If this is correct, the next problem that environmental victims have to confront is whether they are victims of "crimes of violence", as that term is utilized throughout crimes compensation legislation. Opponents of including victims of environmental offences under crimes compensation schemes might well argue the British rationale referred to earlier[50] that it is impossible for the State to protect every citizen from every danger and that victims should not become eligible for compensation.

Some American writers indicate that, as early as 1979, the death toll in the U.S.A. in the "chemical war", was estimated at a rather conservative quarter of a million lives a year.[51] In 1986, an English author, commenting on these types of deaths, noted that white collar crime is left out of victim campaigns, as are:

> ..... other socially harmful actions, **such as pollution of the environment,** the product of hazardous substances, the manufacture of unsafe products and so on, **although they cause more deaths, injury and harm**

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[50] Supra, note 8 at 4.

[51] See, J.H. Reitman, The Rich get Rich and the Poor get Prison (New York: John Wiley, 1979). It should be noted that this figure also included deaths attributable to tobacco and food additives.

than all violent crime combined.[52]

These concerns regarding the number of victims are quite legitimate. They refer, however, to all socially harmful actions and not necessarily to environmental "crimes" or "offences" as these terms are being used in the context of this study. Many harmful activities that give rise to health problems are not considered as environmental "offences". It is not an offence, for example, to drive a car, although by doing so one contributes to the quantity of carbon monoxide polluting the air which may ultimately cause respiratory problems in humans.

The number of victims created in the past or that may be created in the future as the result of actual environmental "offences" is open to conjecture, although there are some statistics about the number of environmental prosecutions.[53] Extrapolating from these numbers, it appears that environmental offences do not occur so often as to make it impossible to compensate the victims who suffer injury, sickness or disease as a result of such offences. With respect to cutting down on such numbers it has been pointed out that:

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[52] S. Walklate, " Victimology, The Victim and the Criminal Process," quoting from Fattah, E.A. " Prologue: On Some Visible Hidden Dangers of Victim's Movements", in From Crime Policy to Victim Policy, ed. E.A. Fattah (London: McMillen, 1985), at p.5. (emphasis added).

[53] See, for example, G. Thompson, M. McConnell & L Huestis, Environmental Law and Business in Canada (Aurora: Canada Law Book Inc. 1993), at p.259-260. Tables,1,2 &3 include details of enforcement activity for the Provinces of Ontario, British Columbia and Alberta respectively. The information shows prosecutions of environmental offences for the years 1989-1990 in each province. Ontario leads the way with 264 in 1990. See also, Evaluation of the Canadian Environmental Protection Act (CEPA), Final Report, (Ottawa, Resources Futures International, 1993), Appendix C at C-15. showing Enforcement under CEPA in 1993, as 23 prosecutions and 12 convictions across Canada.

> Effective regulation should minimize the situations that create a need to compensate pollution victims, but, in a highly industrialized society, no amount of regulation can completely eliminate the need for compensation.[54]

Regardless of how well environmental operations are regulated, the possibility remains that there will always be some victims of environmental "crimes". The problem is whether such crimes can be considered as equivalent to crimes of violence in the traditional sense.

B. What is a Crime of Violence? Do Environmental Crimes Fall into this Category?

Canadian society appears to have become more violent in the last few decades. In the 1980s, for example, violent crime rates increased by 52%.[55] Putting this in perspective, of the more than 3 million criminal incidents reported to the police across Canada in 1990, approximately 9% or

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[54] J. Swaigen, Compensation of Pollution Victims in Canada: A Study prepared for the Economic Council of Canada,(Ottawa: Ministry of Supply and Services, 1981), at vii.

[55] J.E.Pink, & D.Perrier, From Crime to Punishment, (Toronto: Carswell, 1992), 116.

250,000 cases involved violent crime.[56] These statistics do not include victims of environmental crime. In fact, when most people think about crimes of violence, they might consider crimes like homicide, sexual or non-sexual assault, and robbery with violence, but will not readily associate them with environmental crimes.

The omission of a definition of crimes of violence in early British forms of crimes compensation law was the subject of judicial comment in England. Watkins, L.J. said that:

> ...we find it highly unsatisfactory that there is no definition, nor even reasoned explanation, of what constitutes a crime of violence for the purposes of the scheme.[57]

Two cases illustrate how the English courts have wrestled with this problem. In the early case of C.I.C.B., ex parte Clowes,[58] a man had committed suicide by knocking off the end of a gas pipe in his house, and allowing the gas to escape. When the investigating police officer arrived at the scene, he was injured by a subsequent explosion. The Board initially held that no crime of violence had been committed. Upon judicial review, the Divisional Court in rendering its judgment was divided in its opinion as to what might be a crime of violence. According to Wien J. " [a] crime of violence means some crime which by definition as applied to the particular facts of a case involves the possibility of violence against another person."[59] Everleigh J. was of the opinion that such crime was "that kind of deliberate criminal activity in which anyone would say that the probability of injury was obvious." He went on to give his opinion as to the reasons behind the crimes compensation scheme:

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[56] Crime Trends in Canada, 1962-1990, (Ottawa: Statistics Canada, 1992).

[57] R. v. C.I.C.B., ex p. Webb [1986] (Q.B.) 184 at 198.

[58] [1977] 1 W.L.R. 1353.(Q.B.D.C.)

> those responsible for the scheme were not merely contemplating that people who had suffered from some external physical violence should be compensated [and] [t]hey were not concerned with violence in the street or anything analogous to that, but were concerned to compensate victims of crime where those victims suffered personal injury, [And] in setting up a scheme with that in mind, it would be natural for those concerned to have regard to crimes of a kind that sought to protect, or dealt in some [way] with the safety of individuals.[60]

This reasoning would certainly be of assistance in advocating that environmental crimes are indeed crimes of violence, because of the emphasis on personal injury as a consequence of the criminal act. In other words, this approach to defining violent crime emphasizes the consequences to the victim.

The matter came up again in the case of R. v. C.I.C.B., ex parte Webb,[61] in which a train driver suffered nervous shock when a person committed suicide by jumping in front of the train he was driving. Here the earlier approach to defining violent crime taken in Clowes was deemed too wide. The Divisional Court level proposed that a crime of violence meant:

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[59] Ibid., at 1362.

[60] Ibid., at 1359.

[61] [1986] Q.B. 184 (D.C.); [1987] Q.B. 74 (C.A.)

> ..any crime in respect of which the prosecution must prove as one of its ingredients that the defendant unlawfully and intentionally or recklessly, inflicted or threatened to inflict personal injury upon another.[62]

The Court of Appeal, however, considered that the test of a violent crime lies in the nature of the crime itself, not its likely consequences (as had been suggested in Clowes). The Court stated that:

> most crimes of violence will involve the infliction or threat of force but some may not. I do not think it prudent to attempt a definition of words of ordinary usage in English which the Board, as a fact finding body, have to apply to the case before them. They will recognize a crime of violence when they hear about it...

Suffice it to say that, in England at any rate, the precise scope of a crime of violence has not yet been fully determined. Furthermore, Canadian provinces and territories do not define a crime of violence in their crimes compensation schemes.

With this in mind, it is suggested that the rationale in the Clowes case, based on the consequences of the criminal act (such as injuries to the person) is the one that makes the most sense in deciding what is a crime of violence. For example, the recipient of a blow to the head during a robbery might suffer serious brain injury and become incapacitated for life. The effect of the crime on an individual is what should determine how victims are to be compensated. On the other hand, the Webb decision, is too narrow when it looks only to the nature of the criminal offence itself (e.g. a robbery, where the crime consists of stealing, and does not per se require violence as an element of the crime as defined). It ignores the actual effect of the crime upon the victim.

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[62] R.v. C.I.C.B. ex p. Webb [1986] Q.B. 184 (D.C.)184 at 199.

Assuming Canada follows the Clowes reasoning, it could be argued that environmental crimes are assaults directly or indirectly against the person with resultant injuries. As such they could (under Clowes) qualify as crimes of violence and should, therefore, be included in the scheduled offences of crimes compensation acts. As noted earlier in this Chapter,[63] this could be done by amendment of the legislation or by passing regulations permitting certain environmental offences to be added to the schedules. At present, Canada has embraced the concept of crimes compensation for victims of violence in all provinces and territories. However, as we shall discover by examining the criteria for victim "qualification" under the schemes, there is a large gulf between the *concept* and the *reality* of providing adequate compensation to such victims. One might, therefore, question whether even crimes compensation schemes would adequately protect environmental victims.

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[63] See supra, note 17 and accompanying text.

C. The Criteria for Victims to "Qualify" for Consideration under Crimes Compensation Schemes

The object of this section is to examine whether crimes compensation schemes provide a possible method of compensating victims of environmental offences. It is important to consider whether the purposes behind provincial and territorial schemes are sufficiently flexible to include environmental victims under them.

The foregoing examination of the rationale behind crimes compensation schemes and the types of crime that they encompass indicates that such victims might not be precluded from being considered for compensation. For this to occur, it is important to outline the criteria that are adopted by the different provincial boards for the purpose of qualifying victims for benefits, and then to ascertain the nature of the benefits.

In order to see how a potential victim of environmental crime might be made to "fit" into crimes compensation schemes, and identify their inherent limitations, it is necessary to understand the procedures and obstacles that victims of violent crime now encounter when making an application for compensation under the various Canadian acts. To do this, it is proposed to examine in general terms the mechanics of these acts.

(a) Who may be considered a Victim of Crime?

In all Canadian jurisdictions, an administrative body created by crimes compensation statutes has the power to decide who may receive compensation. It also rules as to the terms and conditions of payment to successful applicants, or in certain cases to a victim's dependants. The programs are primarily designed to alleviate pecuniary losses suffered as a result of crimes of violence. In addition, in all Canadian jurisdictions (except Quebec and Manitoba) compensation may be allowed for non-pecuniary damages such as pain and suffering, under certain conditions.[64]

"Victims" or their dependants (where a victim has been killed) are defined in the several acts in a circular fashion; a victim is a person to whom or in respect of whom compensation is or may be payable under the legislation.[65]

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[64] See the statutory provisions providing for non-pecuniary loss in the following provincial and territorial Acts; Criminal Injuries Compensation Act RSA 1980 cC-33(Alberta Act) s9(2); Criminal Injury Compensation Act RSBC 1979 c83(B.C. Act) s2(3.1); Compensation for Victims of Crime Act RSNB 1973cC-14(New Brunswick Act) s17(1)(d); Criminal Injuries Compensation Act RSN 1970 c68 (Newfoundland Act) s16(e)[re-en 1973 c94 s5]; Criminal Injuries Compensation Act RSNWT 1974 cC-23 (Northwest Territories Act)s5(1)(f); Compensation for Victims of Crime Act RSNS 1989 c83(Nova Scotia Act) s9(1)(d); Compensation for Victims of Crime Act RSO 1980 c82 (Ontario Act) s7(1)(d); Victims of Crime Act RSPEI 1988 cV-3.1(Prince Edward Island Act)s19(1)(d); Crime Injuries Compensation Act RSS 1978 cC-47(Saskatchewan Act) s13(e); Compensation for Victims of Crime Act RSYT 1986 (Yukon Territory Act) s4(e).

[65] For example the interpretation sections of the Alberta and Saskatchewan acts regarding victims are similar and read as follows;

With the exception of Ontario, the victim is identified in relation to the Schedule of offences attached to each act [66]i.e., the statute lists which crimes create eligible victims. We have already seen that environmental crimes could, quite justifiably, be added to these statutes.

(b) Procedures and Considerations that Determine the Award of Compensation

Procedural steps, and important issues for the Board to determine, are clearly set out in each statute. One of the prerequisites for qualifying for compensation under the acts, which may pose problems for the environmental crime victim, has to do with time limitations.

In all jurisdictions, the time for bringing an application is one year from the occurrence of the crime, with the exception of Manitoba, where it is two years. This time limit may be extended at the discretion of the Board, if it considers that there is a valid reason for the late

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"Victim" means a person to whom or in respect of whom compensation is or may be payable under this Act;

Both acts are somewhat similar in the definition of "dependants" (especially, for reasons unknown, in the use of the masculine gender) but differ in that the former Act includes "spouse" in its interpretation of the term.

The Alberta Act reads s.1(c), "dependant" means a spouse, child or other relative of a deceased victim who was, in whole or in part, dependant on the income of the victim at the time of his death and includes a child of the victim born after his death.

The Saskatchewan Act reads, s.2(c), "dependant" means a child or other relative of a deceased victim who was, in whole or in part, dependant upon the income of the victim at the time of his death.

[66] Burns, supra, note 13 at 29.

application.

In Quebec, the discretion to extend the time limitation is not as flexible as in some other provinces. Section 11 of the Quebec Act states that:

> ..if the claimant fails to apply and to give notice of election within the prescribed delay, he is presumed to have renounced the right to avail himself of this Act.

The time limitation provisions of the Manitoba Act are only slightly less rigid: the Manitoba Board takes the position that in "only very exceptional circumstances would the time limit be extended".[67] In contrast, the Newfoundland Board in its 1986 Report indicated that "it has and should continue to be tolerant in granting extension of time limits in justifiable circumstances".[68]

The case of Koyina v. Cmmr. of Northwest Territories[69] is an example of judicial interpretation of what might constitute a valid reason for the extension of time limitations. In that case, an extension of time was granted to an applicant who was unaware of this possible source of compensation for victims of crime. According to the learned judge, this was due to the failure of those responsible to make known to the public the existence of the Act[70], rather than some failing on the part of the victim.

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[67] Crimes Compensation, Manitoba Report, 1987-1988. (Winnipeg: Crimes Compensation Board, 1988), at 8.

[68] Crimes Compensation, Newfoundland Report, 1986. (St. John's: Crimes Compensation Board,1986), at 3.

[69] [1985] NWTR 88 (SC) affd. [1986] NWTR 115 (CA)

Due to the latency of some environmental crimes discussed earlier,[71] and the difficulty there may be in accurately identifying the responsible offender,[72] the environmental crime victim could run into problems complying with the time limitations sections as they are presently written. The question arises as to what the Board, in its discretion, might consider as valid reasons for delay in bringing an application, especially where the delay was a particularly lengthy one.[73] At present, there is no judicial authority on this point.

Time limitations are not usually a problem for victims of traditional crime, in that the date and time of the offence are usually matters of common knowledge both to the victim and the police. They could well be a problem area for the victim of environmental crime, where the exact date of an offence is not always known, by either the victim or the environmental authorities. In addition, the effects of the offence may not become manifest in the victim for a considerable time after exposure to the hazardous substance that has been introduced into the environment.

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[70] [1985] NWTR 88, per de Weerdt,J. at 91, where he ruled that the lateness of the claim, " ..was attributable in a major degree to the failure of those responsible to make known to the public in the Northwest Territories that crime victims could obtain compensation under the Act."

[71] See supra, Chapter 1, note 121 and accompanying text.

[72] See supra, Chapter 2 at 48.

[73] See, M. Dore,"A Commentary On The Use Of Epidemiological Evidence In Demonstrating Cause- In- Fact", (1983) 7 Harv. Envtl. L. Rev. 429, note 2, "The latency period, or time between exposure and appearance of symptoms, can range from 1 to 50 years."

Another condition precedent, in most jurisdictions, is that the crime must be reported to the relevant law enforcement agency within a "reasonable" time, and if this is not done it can be grounds for the refusal of compensation.[74] This requirement again may pose problems for the environmental victim, for the same reasons as enumerated above.

One of the grounds for denial of compensation, or in some jurisdictions for its reduction, is where victims may have contributed to their own misfortune by "misbehaving".[75]

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[74] See s 2(3) of the Alberta Act which says,
The Board shall not make an order for compensation
(a) if the application for compensation is made after the expiration of one year from the date of the injury or death, as the case may be, or
(b) if the injury or death, as the case may be, and the act or omission or the event resulting in the injury or death are not reported within a reasonable time after the happening thereof to the proper law enforcement authority, unless the applicant for the compensation provides to the Board an explanation considered reasonable by the Board of the failure to make application within one year or to report the matter to the proper law enforcement authority within a reasonable time, as the case may be.

[75] For example, the Alberta Act reads; s(8)(1) The Board, in making an order for the payment of compensation, shall consider and take into account all circumstances it considers relevant to the making of the order and, without limiting the generality of the foregoing, the Board shall consider and take into account any behaviour that directly or indirectly contributed to the injury or death of the victim or the destruction of or damage to the victim's property. (emphasis added). The Saskatchewan Act contains similar wording in its s.(11).

This ground for exclusion, or potential exclusion, was adopted from the contributory negligence concept in tort law, and may pose special difficulties for pollution crime victims. Suppose, for example, victims became aware that their illness was due to exposure to certain hazardous substances, illegally discarded into the environment. If their exposure was a direct result of the location of their residence, and they did nothing about it (perhaps because of financial or other considerations) would this be considered as excusable behaviour, or on the other hand merit denial of compensation? While s.8(1) of the Alberta Act obviously refers to a victim being partially responsible for a criminal incident involving violence, in an environmental context, analogous situations could arise, as is illustrated by recent cases in Ontario and British Columbia, concerning non-disclosure by the vendor of real estate contaminated by radioactive materials.[76] If the purchasers had remained on these properties and suffered environmental injuries, could it be said that they had willingly contributed to their own misfortune?

Additional problems for environmental victims of crime under crimes compensation schemes appear to be in the areas of time limitations, reporting of offences, and behaviour that might be deemed as adding to the victim's misfortune. However, on the positive side of the scale is the provision in all the provincial and territorial legislation across Canada that it is not necessary to either produce an offender, or show that an offender was actually convicted of an offence, in order to receive compensation. The applicant must merely prove to the Board on a "balance of probabilities" (which is less onerous than the criminal standard of beyond a reasonable doubt) that there has been an injury or a death as a result of one of the relevant crimes. Granted that, if an offender is convicted of the relevant crime, *a fortiori*, this favours the applicant, but it does not automatically guarantee that compensation will be awarded. However, a conviction is not absolutely necessary for an award of compensation, and even if the accused is acquitted of the alleged offence, it will not mean that an applicant should always be refused compensation.

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[76] See, Sevidal v. Chopra (1987), 2 C.E.L.R. (N.S.) 173, (Ont. H.C.), and C.F.R. Holdings Ltd., v. Fundy Chemicals International Ltd.(1984), C.C.L.T. 263, (B.C.C.A.).

Such provisions could benefit the environmental victim, since one of the major difficulties both in tort and criminal law is establishing proof of the offence (to the required degree).[77] Admittedly, the standard of proof required in tort law is also on a "balance of probabilities", but in tort this requirement goes to proving that a named defendant was responsible for the injuries suffered by a plaintiff. Under the compensation acts, this standard of proof is only required when showing that a scheduled offence was actually committed. Identification of an accused is not required.

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[77] See supra, Chapter 2 at 58.

On the other hand, in environmental crimes (whether mens rea, strict liability or absolute liability offences), the prosecution must in each case prove beyond a reasonable doubt that an accused committed the actus reus.[78] Most of the crimes compensation legislation regarding direct consequences of an offender's behaviour is similar to the Alberta Act, in that compensation is payable only when a person is injured or killed and the injury or death:

> (a) Is the **direct result** of an act or omission of another person that occurred in Alberta **and** is within the description of any of the criminal offences set out in Schedule 1.[79]

These "direct result" requirements of a "scheduled" offence could prove to be an added burden for the environmental victim. Such a victim would have to show that injuries were received as the "direct result" of a "scheduled" criminal offence.

Hence, even though it is not absolutely necessary to identify an offender, or show that an offender was convicted of an offence to qualify for compensation, the problem arises in establishing the "direct link" between a "crime" having been committed and the resulting injury. For example, let us suppose a person became ill as the result of exposure to contaminated water. If there was no evidence that any particular company or person had committed the pollution or could be identified as a perpetrator of the actus reus of a crime, then there is no "direct link" established between the exposure and an offence having been committed. This could make compliance with the "direct result" of a "crime" provision difficult for the environmental victim. However, in such cases the offence could possibly be termed an "accidental" spill that bore the characteristics of an offence (for example a discharge limit being exceeded). The Boards, in dealing with accidental situations, have usually ruled that the actions of the offender were reckless and found for the claimant.[80]

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[78] E.L.Hughes,"The Actus Reus Defences"(1992) 2 J.E.L.P.287.

[79] Criminal Injuries Compensation Act, RSA 1980, c.C-33 s2(1)(emphasis added).

Leaving these potential areas of difficulty aside for the moment (assuming that environmental crime victims were to be included under crimes compensation schemes, and that the problem areas would be amended or changed in the legislation to realistically enable such victims to qualify for compensation) one must next discover the type and quantum of benefits for which environmental crime victims might become eligible.

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[80] Burns, supra, note 11 at 49, refers to examples: Ontario Seventh Report Award 200-1595 at 71-72; Ontario Twelfth Report Award 200-6390 at 36 (an award to a 67 year old woman knocked to the ground when two men began fighting in a mall); British Columbia, Ninth Report Award 13480 at 14.

(c) Quantum of Damages awarded by Crimes Compensation Boards.

Data on the type and amounts of compensation paid can be found by an examination of the annual reports of the different Boards across Canada. Generally speaking, the quantum of benefits is significantly low for victims of violence. Pecuniary losses are restricted to certain specific kinds of damages; personal property damage and lost wages and incidental medical or other expenses are easily assessed through documentary proof, such as receipts. It is in the area of non-pecuniary loss, however, that the Boards are restricted as to the type and quantity of an award. Such damages are not so easy to calculate. A brief discussion of each type of damages that the Boards may presently award follows, along with a discussion of the difficulties these awards may create in seeking adequate compensation for environmental victims.

(d) Pecuniary Damages

The heads for recovery of pecuniary damages follow the general format recommended by the Uniformity Commissioners of Canada in their 1970 proceedings,[81] and have been adopted by all provinces except British Columbia and Quebec. The format is as follows:

7.(1) Compensation may be awarded for,

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[81] Proceedings of the Fifty-Second Annual Meeting of the Conference on Uniformity of Legislation in Canada, (Ottawa: Conference of Commissioners, 1970), at 299.

(a) expenses actually and reasonably incurred or to be incurred[82] as a result of the victim's injury or death;

(b) pecuniary loss or damages incurred by the victim as a result of total or partial disability affecting the victim's capacity for work;

(c) pecuniary loss or damages incurred by dependants as a result of the victim's death;

(d) maintenance of a child born as a result of rape;

(e) other pecuniary loss or damage resulting from the victim's injury and any expense that, in the opinion of the Board, it is reasonable to incur.

Due to space constraints, it is not possible in this study to analyze each of these heads separately. What is significant, however, is that the dollar amount payable under each is restricted to the amount of actual pecuniary loss incurred, as a result of physical injuries only, and not to property loss. Only sub-section (e) (the residual head of damages section) might include actual property loss. The various Boards, however, have been reluctant to use this head to include specific property damages.[83] In fact, compensation for property loss or damage to property is specifically exempted in the Alberta, Manitoba, and the

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[82] The phrase "or to be incurred" does not appear in the Alberta, Saskatchewan, or Manitoba, Acts. These provinces permit recovery only for those expenses already incurred at the time when the victim makes an appearance initially before the Board.

[83] See examples given by Burns, supra, note 13 at 192, where the various Boards sometimes use this section to award damages for such items as damaged clothing or lost watches, theft of money from the victim, etc.

Yukon Acts,[84] with the exception of eyeglasses, clothing, and "other like property on the person of the victim".[85]

These heads of damages are not greatly significant to the victim of environmental crime, who undergoes the act of violence in a totally different manner than the victim of a direct personal assault. However, because the heads of pecuniary damages are almost all restricted to physical injuries, they would be significant in such matters as medical expenses or medication costs not covered by health insurance systems. Another significant head for the environmental victim would be under lost wages (also assuming that the person was not in receipt of disability insurance, since collateral benefits are usually deducted from any awards made by the Board).[86] These types of pecuniary benefits, while offering a certain degree of limited compensation to both the traditional and environmental victim, are not too significant. It is the non-pecuniary head of damages that, at first glance, appears to be more appropriate and to hold out the possibility of at least partial recompense for the environmental victim. It will be seen that there are so many restrictions and limitations on this head of benefits, however, that they also are not an adequate source of compensation for either type of victim.

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[84] See, supra, note 14: the Alberta Act, s.9(3)(a); the Manitoba Act, s.12(2); and s.3(4) of the Yukon Act.

[85] Alberta Act,s.9(3)(a)

[86] Burns, supra, note 13 at 285-286.

(e) Non-pecuniary damages

The loss that is most frequently compensated under this head of damages is that of pain and suffering.[87] All of the jurisdictions in Canada have provisions in their crimes compensation schemes for pain and suffering (with the exception of the provinces of Manitoba and Quebec).[88] It is the severe restriction placed by the legislation on this head of damages that is of most concern for present victims of crime, and potential environmental crime victims.

In the province of Alberta, compensation under this head is awarded only to "Good Samaritans", defined by the legislation as those persons who become victims of violent crimes while preventing a crime, making an arrest, or assisting a peace officer in doing so.[89] Most of the other provinces provide compensation under this head, but in Saskatchewan and New Brunswick only the victim is entitled to receive this type of benefit. Other provinces do not expressly restrict compensation to only the victim, yet neither do they spell out who may be eligible, allowing, perhaps, the victim's dependants or relatives to receive an award for pain and suffering.

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[87] Burns, supra, note 13 at 127.

[88] Ibid.

[89] Ibid., at 130; s.9(2) and s2(1)(b)of the Alberta act have been succinctly combined by Burns, to illustrate when a Good Samaritan is eligible for compensation, as follows;

> When the injury to a person occurred [while he was endeavouring to arrest a person, preserve the peace, or assist a peace officer in carrying out his duties with respect to law enforcement] the Board may, in addition to [the five enumerate heads of pecuniary loss], award compensation to the injured person, in an amount not exceeding $10,000, as damages for physical disability or disfigurement and pain and suffering.

This head of damages could be one of the more significant for potential environmental victims, who may undergo the same long lasting physical and psychological effects suffered by victims of violence.[90] They have been described as becoming "weary" of the long process of recovery, both as applicants for compensation, and as persons convalescing from their injuries.[91] It is necessary to look at the reasons for the reluctance to award loss for pain and suffering, or (as in the case of Manitoba and Quebec) for not granting any compensation at all for this type of loss.

Many reasons are given on both pragmatic and philosophical grounds for not including non-pecuniary damages in crimes compensation schemes. Some of the pragmatic reasons are, for example: first, that it would be difficult to detect claims based on crimes of fraud under this head; second, that such losses are too difficult to assess; and third, that the cost of compensating for pain and suffering would be too high.[92]

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[90] J.Shapland, J. Willmore, & P.Duff. Victims in the Criminal Justice System (Aldershot: Gower, 1985), 98.

[91] Ibid., at 163.

On a philosophical basis, it has been said that the inclusion of non-pecuniary damages would "exaggerate the proper role of compensation schemes".[93] Moreover, because workers injured on the job do not receive any compensation for their pain and suffering, ergo, neither should victims of crime.[94]

This equivalency argument that victims of crime should be treated similarly to victims of industrial accidents is flawed for several reasons. The first is that the very young and very old are often more susceptible to crimes of violence.[95] It is evident that both these categories of victim are not usually gainfully employed, and therefore without employment insurance. Moreover, accidents are accepted as one of the risks of gainful employment in certain occupations, but no person is prepared for the shock and trauma suffered as the result of a violent attack on their person. A similar argument could be made on behalf of the environmental victim suffering injuries unsuspectingly as the result of pollution that may have been discarded into the environment quite sometime prior to the victim's exposure. The trauma would be similar, in that this form of injury is not one that people often think about or expect to encounter. Also, the very young and very old are more susceptible to some types of environmental illness.[96]

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[92] Burns, supra, note 13 at 153.

[93] N.Morris, and G.Hawkins, The Honest Politicians Guide to Crime Control (Chicago: U.of Chicago Press, 1970), at 44-45.

[94] Burns, supra, note 13, citing as an example, the (1971) Manitoba Debates 2573 (July 1 1971).

[95] Burns, supra, note 13 at 154.

Those who oppose including loss for pain and suffering might well use the same arguments against including environmental victims in crimes compensation schemes, for the type of injury that they are likely to suffer lends itself to compensation under this head. It is with this in mind that one should examine the other counter-arguments to the foregoing exclusionary principles.

First of all, the fraudulent argument does not appear to have validity, based on the experience of those jurisdictions that do award damages for pain and suffering.[97] Second, the argument that predicts skyrocketing costs could be countered by putting a quantum limit on this head of damages.[98] Monetary amount of awards for pain and suffering is, in any event, limited by statute, in most jurisdictions. In Alberta, for example, the limit is $10,000 dollars,and the Board's 1992 report indicates that the largest amount awarded for pain and suffering was $2,000 dollars.[99]

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[96] See infra, Appendix B, regarding the peculiar vulnerability of young children to lead poisoning.

[97] Burns, supra, note 13 at 152-153, " ...The Boards have demonstrated an ability and willingness to disallow claims on the basis that they did not consider the claimant a credible witness." See, as an example of this policy, the British Columbia Fifteenth Report, Award 85113 at 21.

[98] Ibid., at 151-152.

Furthermore, the difficulty in objectively assessing awards for pain and suffering is encountered by the common law courts all the time. They are practiced in awarding sums that, more often than not, accurately reflect the monetary worth of the particular pain and suffering undergone by victims of violence. As Professor Burns points out, it is incongruous to charge a Board with the disbursement of public funds and argue at the same time that it would be incapable of assessing damages for pain and suffering.[100] Many Boards include as an administrator, either by choice or statutory requirements, at least one barrister and solicitor.[101] In addition, this uncertainty in the quantification of damages "should not prevent an assessment, provided that some broad estimate can be made."[102]

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[99] See, Crimes Compensation Board Annual Report, (Edmonton: Alberta Attorney General,1992), at 9; Decision #4743-92. The applicant, a male police officer received a large slash to the nose and cheek in going to the assistance of a fellow officer. The Board awarded $2,000 dollars for pain and suffering. Other reported cases in the 1992 report show various sums of $750, and $1,000 dollars under this head: Surely not large enough amounts to cause consternation that awards for pain and suffering, might open the floodgates for fraudulent or exaggerated claims. See also Infra, note 104, and accompanying text regarding small amounts of awards.

[100] Burns, supra, note 13 at 184.

[101] See, supra, note 14: for example, the Alberta Act, s.20(3); also, the Manitoba Act,s 2(3).

[102] J.H.Monkman, Damages for Personal Injuries and Death 5th. ed (London: Butterworths, 1973), at 9.

Finally, if, as has already been suggested, the rationale of compensation schemes in Canada is to satisfy a moral or social obligation, then it is not logical to deny compensation for pain and suffering. Suppose, for example, that a young person were to suffer exposure and consequent illness from criminal pollution. What damages would be available to that person under the present schemes if not for pain and suffering? As a young person, perhaps not working, there would be none for wage loss or future wage loss. Similarly, as an insured person under health insurance, there would be no compensable medical expenses.

The residuary provisions of the legislation might be operative for some miscellaneous expenses at the discretion of the Board, but by and large such a victim would end up receiving little or nothing for his or her illness by way of compensation, even though that person was the victim of a "crime of violence" (assuming that environmental offences became designated as such). Thus, not awarding non-pecuniary damages and putting all kinds of restrictions on this head of compensation, makes crimes compensation inadequate for all victims of crimes of violence, and "leads to the inexorable conclusion that such schemes offer incomplete compensation".[103] The position of an environmental victim would be no different.

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[103] P. Burns, "Recovery For Pain and Suffering Under The Criminal Injuries Compensation Schemes" (1981) 29-30 U.N.B. Law Journal, 47 at 72.

Conclusion

If environmental victims could be included under crimes compensation schemes, they would encounter the same problems with the schemes that traditional victims of crimes of violence have to contend with. In the final analysis, one must decide whether such schemes provide realistic compensation for victims of violent crimes. If it were successfully argued that environmental victims should be included under such schemes, what could these schemes do for them by way of compensation for their injuries?

This question has been asked regarding the plight of those who are "eligible" victims under the schemes, and the answer is probably best summed up by a review of the latest edition of Burns' book analyzing crimes compensation schemes in Canada. The reviewer accurately pin points the problem by noting:

> The author's analysis of these cases does not, however ask the most obvious question which is: why would a person even bother bringing a claim for compensation in light of the vast array of factors which deny or reduce compensation as well as the paltry sums which are awarded by these boards?[104]

The reviewer goes on to suggest that the future of the Boards may well be in need of reconsideration, in that they do not even attempt to address the needs of the victims who are most vulnerable. While this conclusion may seem a little harsh, it certainly seems justifiable on the grounds that there are so many exclusions under the legislation. In addition, the Acts contain fairly rigid monetary limitations for important victim concerns such as pain and suffering.

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[104] A. Jackman, Book Review of Criminal Injuries Compensation,2d ed. by Peter Burns, (1993) 72 Canadian Bar Rev. 109.

Drastic improvements to crimes compensation legislation are required to make it realistic. First, changes are needed to make the schemes more flexible and more generous, so that they could become an adequate financial vehicle for the payment of compensation to all types of victims of violence. Second, is the possible inclusion in the schemes of environmental victims as victims of violent crime.

Prior to presenting what the writer considers a more realistic approach to the problem of compensating victims of environmental crimes in Canada, an assessment will be made of how some foreign jurisdictions deal or propose to deal with the matter of environmental victims. Although the methods of compensating victims adopted in these jurisdictions are not confined to those victims who have been the object of a criminal offence (in most cases the suggested methods of reform apply only to tort law) the proposals and enacted legislation are broad enough in their scope to assist in conceptualizing a general scheme of compensation, regardless of how the environmental victim's suffering was brought about. Their most predominant and useful features might easily be transposed into a scheme for compensation of the victims of environmental crime in Canada.

CHAPTER 4

ALTERNATE METHODS AND SUGGESTIONS FOR COMPENSATING ENVIRONMENTAL VICTIMS IN JAPAN, THE U.S.A. AND CANADA.

Introduction

The main thrust of this thesis is that the existing methods of compensating victims of environmental crime should be improved in Canada. Before making concrete recommendations as to how to effect such an improvement it is proposed to examine what some other jurisdictions have done, or are advocating, in this area.

Some foreign jurisdictions, most notably Japan and the U.S.A., have acknowledged the fact that the compensation of environmental victims (regardless of whether their injuries are sustained as the result of an environmental crime) has not always been dealt with in a satisfactory manner. This recognition has been made, in Japan, by enacting legislation to make it easier for victims to be compensated for their injuries and, in the U.S.A. at both the federal and state level, by making recommendations and proposals for the betterment of all victims of environmental health hazards.

The strengths and weaknesses of these alternate mechanisms of compensation for environmental pollution victims will be reviewed. This account will examine whether some of the more adaptable features of the legislation or proposals could be utilized as a basis for a Canadian compensation scheme, focussed on victims of environmental crime who lack some of the possible remedies that are available to traditional victims of crime (such as for example, crimes compensation).

The chapter begins by tracing the circumstances which led to current Japanese law and policy in this area. Proposals for reform of existing methods of compensation by American environmental and legal study groups are then reviewed. The chapter concludes with an examination of a scholarly attempt to address the Canadian situation regarding the compensation of victims of pollution.

In the first section of this chapter we shall examine the circumstances that brought about legislation in Japan, which changed entirely not only the status of environmental victims, but also the manner in which they were dealt with by government and the judiciary. It gives an insight into the nature of the health problems created by examining the history of four major pollution cases. While these cases were not (to the writer's knowledge) the subject of any criminal proceedings, the nature of the pollution and the manner in which it was brought about, would certainly qualify as the type of environmental offences to which the criminal sanctions of C.E.P.A. are directed.

A. The Japanese approach to victims of environmental health hazards

The fundamental reason for the establishment of a totally new approach to the compensation of pollution victims in Japan was the result of inadequacies in the tort system.[1] The changes were brought about as a result of four different major environmental pollution cases which were commenced in Japanese courts between the years 1967 and 1968. A brief review of the history of these cases is helpful in seeing the situation from the victim's perspective. It also illustrates what may be accomplished by an organized group of victims, sharing a common affliction, in bringing pressure on the judicial system to change the status quo.[2]

The first case began in the mid-1950's and involved victims suffering from methylated mercury poisoning, the cause of Minamata disease, which is extremely painful and is often fatal. The Chisso manufacturing company had been producing acetaldehyde for many years. Methylated mercury, a byproduct of this chemical, was discharged in effluent over a prolonged period into Minamata Bay. Gradually, the fish in the area became saturated with the chemical, and the inhabitants of the Minamata fishing community began to show concentrated amounts of methyl mercury in their body tissue. Because of the poverty prevailing in the region, the residents were unable, at first, to bring much pressure to bear on the company to make it desist from discharging its effluent into the Bay. Victims' protests went unheeded for thirteen years. Eventually, they decided to take the company to court and sued them in tort. In the second case, when a similar outbreak of Minamata disease occurred in Niigata, in 1965, the residents decided to sue the responsible Showa Denka plant within only two years and commenced an action in 1967.

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[1] A.Marcus, "Compensating Victims for Harms Caused by Pollution and Other Hazardous Substances: A Comparison of American and Japanese Policies", (1986), 8 Law & Policy, No.2 189 at 195.

[2] See, J. Gresser, K. Fujiura, & A Morishima, Environmental Law In Japan (London: Cambridge Press, 1981) at pp.29-51, for a detailed description of the four cases from which the brief synopsis in the text is drawn.

The third case, which arose as a result from a different type of environmental pollution, first appeared in Yokkaichi where many oil refineries, power plants, and petrochemical operations were located. The residents of the nearby village of Isozu noticed, in 1961, that many people, especially children and the elderly, were beginning to complain of asthma, bronchitis, emphysema and other respiratory ailments. This happened simultaneously with an increase of sulphur dioxide emissions at Isozu at levels up to six times greater than other urban centres. However, the Yokkaichi asthma episode was later analyzed and it was concluded that the respiratory diseases were not due to sulphur dioxide, but to concentrated sulphuric mists (which may be much more toxic than sulphur dioxide)[3] emitted from the stacks of calciners of a titanium oxide manufacturing plant located windward of the residential area.[4] The victims pleaded with the companies to reduce their noxious emissions, but to no avail; they too filed suit in 1967 after one of the victims committed suicide.

The final case involved the Toyama, itai-itai ("it hurts, it hurts") disease, which broke out in the communities in the delta of the Jintsu River. Inhabitants of the region had ingested the water from the river and eaten rice from irrigated paddies. It was discovered that the Jintsu River had been the repository for the toxic effluent of the Mitsui Mining and Smelting Plant, which had operated upstream since the 1890's. The effluent consisted of cadmium, the ingestion of which causes chronic poisoning. Symptoms displayed by the victims included extreme pain, splintering of bone tissue, disfigurement, crippling and death. As in the other cases, the companies refused to acknowledge that they were the cause of the disease, and tried to explain the symptoms as being the result of dietary deficiency and lack of proper nutrition. The government ordered an investigation of the complaints, but the results were inconclusive, suggesting that cadmium was only one contributing factor to the outbreak of the disease. The victims in this case also filed suit in 1968.

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[3] See, V.M.Sim and R.E. Pattle, "Effect of Possible Smog Irritants on Human Subjects," (1957) 165 J.Am. Med. Assoc.1908.

[4] T.Kiagawa, "Cause Analysis of the Yokkaichi Asthma Episode in Japan," (1984) 34 Journal of the Air Pollution Control Association, at pp.743-746.

All of the cases were marked by a denial by the polluting companies of any responsibility for the victims' diseases. This common factor ultimately led to the formation of the victims into a cohesive group, with support from almost all sectors of the community. The failure of mediation to bring about a satisfactory solution to the victims' claims, and the consequent pressure of the support groups, led to the judicial decisions in each case, which culminated in the development of a completely new method of dealing with environmentally induced diseases.

There were two phases in the process of uniting the Japanese people behind the clamour for reform of the pollution laws. In the first phase, citizens in the four cases appealed for compensation for the damage that had already been done. In the second phase, the people went beyond the traditional appeals and respect for authority, to organize for the purpose of preventing such tragedies from occurring over the long-term. It was in the second stage that professionals in various fields offered their expert assistance and moral support to the victims. The issues, therefore, expanded from the welfare of a local fishing village in the Minamata case, to the whole question of national priorities of government and public accountability of big business.[5]

The most important impact of the four cases was that the traditional standard of proof in tort actions was relaxed and made very flexible, especially in the interpretation of scientific data.[6] In the Minamata cases, the District Court ruled that "causation" may be proved by an accumulation of circumstantial evidence if that explanation is consistent with the relevant scientific disciplines.[7]

The Itai-Itai action was based on the theory of strict liability under article 109 of the Mining Law,[8] and the critical issue was the proof of causation. As in most pollution cases, the evidence of experts was crucial and, as is usual, was conflicting. The defendants argued that an explanation of all scientific evidence was legally necessary, while the plaintiff attempted to restrict the focus of the court's analysis. The High Court's decision in

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[5] B.L.Simcock, "Environmental Pollution and Citizen's Movements," (1972) 5 Area Development In Japan, 13-22.

[6] Marcus, supra, note 1 at 196.

[7] Ibid. at 74. For a discussion of the problems of causation, see, infra, Chapter 5, note 17 and accompanying text.

[8] Gesser, supra note 2 at 62, quoting from the court's decision on the Liability of the Defendant, " Article 109(1) of the Mining Law (1950, Law No.289) provides that when damage to other persons results from drilling, discharge of pit water or wastewater, slag or slag poles, or smoke in connection with mining operations, the holder of the mining right at the time of the occurrence of damages shall be liable for damages......"

1972 ruled that epidemiological evidence could be used for the purpose of establishing legal proof. A plaintiff could demonstrate that a population was comparatively disease free before the occurrence of pollution, and that the increase in disease correlated to increased exposure to the pollution. These two elements (combined with the fact that clinical and experimental evidence did not contradict statistical inference of causality, and that in regions of low pollution there were low numbers of diseased persons) were sufficient in the court's opinion to satisfy the proof for causal connection.

In the Yokkaichi air pollution case, two major innovations in tort law resulted from the court's decision. The first was an acceptance of general knowledge about any of the harmful qualities of a particular toxic substance, such as sulphur dioxide. Rather than requiring an in depth scientific analysis, the court was prepared to accept a general consensus of opinion. Secondly, the court upheld the common law theory of joint and several liability of defendants. If each defendant was not solely responsible for the resulting damage, they could be held liable in combination, so long as they were operating in close proximity, and aware that discharges from their factories might combine to produce dangerous levels of pollution. They could also be held liable for the total damages awarded. The effects that these cases had on the subsequent course of pollution victims in Japan has been neatly summarized as follows:

> In these four cases, the attitudes the courts adopted toward scientific uncertainty was quite novel. They integrated statistical, clinical, and experimental data in a common framework and applied it to a variety of diseases, many of which were chronic and attributable to multiple factors and sources. **These four cases were influential in moving Japan toward a national compensation system**.[9].

As the social and environmental movements motivated by these cases increased, the government acknowledged the causal connection between environmental disease and industrial expansion and in 1972 announced that a bill would be presented to the Diet (Japan's Parliament) to establish a national compensation system. The essential idea behind the resultant Japanese legislation of 1973, as enacted in the Law for the Compensation of Pollution-Related Health Injury Act[10] (herein the Act) was the recognition that the misfortune of the victim must be addressed, and that serious injury to human health accompanies industrialization.[11]

In North America the tort system's capacity to deal effectively with environmental pollution exposure cases has been diminished by the burden of proof of causation,[12] but under the 1973 Japan Act, victims did not have to prove causation. All that was necessary to infer causation was a "significant" correlation between a disease and a hazardous substance. If there was a strong chance that, because of exposure to a hazardous substance, a person was likely to contract a specific disease, then the causality was presumed.[13] Concern for pollution victims also resulted in the establishment of a means for non-judicial resolution of health related damage disputes.[14]

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[9] Marcus, supra, note 1 at 197(emphasis added).

[10] Kogai Kenko Higai Hosho Ho (1973, Law No.111) This method of reporting Japanese cases is recommended by H. Tanaka,(1976) 31 The Japanese Legal System: Introductory Cases and Materials,(Tokyo: University of Tokyo Press, 1976)

[11] Gresser, supra, note 2 at 285.

One author, reflecting on the aftermath of these cases, indicates that because of their tragic experience with pollution disease and injury, the Japanese have tended to equate environmental problems with the prevention of harm to human health, and have consequently neglected to a degree the protection of the natural environment itself.[15] Although this may very well be true, and even though the Japanese had a rarely used and undeveloped tort system, they now have a comprehensive programme for compensating pollution victims in place, while many other countries like Canada[16] and the U.S.A. do not. Although the three cultures and legal systems are not directly comparable, nevertheless the Japanese system can serve as a source of ideas for any Canadian system that might seem justified.

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[12] D. Rosenberg, " The Causal Connection In Mass Exposure Cases: A "Public Law" Vision Of The Tort System," (1984) 97 Harvard Law Review, 851 at 855.

[13] Marcus, supra, note 1 at 197.

[14] See, J. Gresser, "The 1973 Law for the Compensation of Pollution-Related Health Damage: An Introductory Assessment," (1971) 8 Law In Japan at 91.

[15] F.K.Upham, "After Minimata: Current Prospects and Problems in Japanese Environmental Litigation,"(1979) 8 Ecology Law Quarterly, 213 at 220.

A feature of the Japanese system, which probably poses the most problems for other jurisdictions, is the method of funding. Funds are collected by a quasi-governmental body, managed by industry under governmental guidance.[17] Polluters pay the entire costs of victim assistance and are classified as either (1) stationary or mobile sources of pollutants, or (2) operators of prescribed facilities which cause specific disease.[18]

For example, operators of smoke and soot generating facilities would fall into the "stationary source" category, while automobiles come under the "mobile source" classification. These operations and vehicles are typified as being the source of non-specific diseases caused by pollution. The victims of this type of pollution are designated as being in Class I areas. Revenues for compensation of this Class come mainly from a graduated emission charge, and also from a tonnage tax on automobiles.[19] This charge is collected by a government-appointed authority and is pooled at the national level, and subsequently distributed to provincial governments for payment to victims.[20]

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[16] See supra, Chapter 2 note 116, and infra, Chapter 5 note 54, and accompanying text. Canada does not have a federal statute that deals solely with compensation for personal injury as the result of environmental offences. However, one province at least partially addressed the problem. The Ontario Spills Bill, being Part IX of the Environmental Protection Act R.S.O. 1980, c.141, does include a provision for compensation for personal injury if received as the result of a particular spill.

[17] Marcus, supra, note 1 at 198.

[18] Gresser, supra, note 2 at 290.

The second class of victims, classified as belonging to Class II areas, are those who suffer from specific named diseases, which are caused mainly by water pollution and specified substances. The operators of prescribed facilities which emit or discharge these substances are directly responsible for payment to victim groups at the local level. Diseases caused by specific pollutants such as Minamata, or Itai-Itai, and chronic arsenic poisoning would fall into this category.[21]

It was the intention of the drafters of the Act to focus on diseases which had occurred in the four pollution cases. However, the statute does contain provision in Article 2 to allow the prime minister to designate pollution diseases which can be certified as falling within the ambit of the Act, thereby making the victim eligible for compensation benefits, once sufficient data is compiled to demonstrate a correlation with the type of pollution.[22]

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[19] Ibid.

[20] Ibid.

[21] Marcus, supra note 1 at 198.

The type of benefits payable under the Act include medical care benefits and medical care expenses. Persons who are handicapped as a result of suffering environmental disease are also entitled to receive benefits, as are survivors. The latter category may also qualify for a lump-sum payment; there are also provisions for child compensation allowances and funeral expenses.[23]

The development of criteria for victim certification evolved after consideration was given to the Class I and Class II categorizations. The former class of victims were qualified based upon the length of residence, work or contact in the area of industrial pollution sources, their age and sex. Before establishing these criteria the Environmental Agency conducted an intensive study of patients in the Yokkaichi district.

The Class II criteria were different; the most crucial problem lay in the identification of the specific disease. Many patients suffering from such a specific disease did not always manifest "typical" symptoms. The drafters laid down a strict orthodox classification of the disease, resulting in arbitrary requirements in the display of disease symptoms. Victims have subsequently complained that the present criteria are too arbitrary and unreasonably restrictive.[24]

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[22] Gresser, supra, note 2 at 293.

[23] Ibid. Figure 1 at 291.

Compensation is dispersed under the administration of the Pollution-Related Health Damage Certification Council. The council is staffed by medical experts, lawyers and other professional people, who decide which of the victim applicants are entitled to certification and what type of benefits they are eligible for. The medical benefits cover all medical bills, and free examination and treatment at a hospital designated to treat pollution related diseases. The hospital, in turn, bills the government of the local prefecture for the patient's expenses.[25]

If a patient is disabled as a result of his or her injuries, that patient is paid 80% of the national average monthly wage, and is categorized as being a special or first class patient; second class patients receive 40%; and third class patients receive only 20% of the national average wage. The severity of impairment is the governing factor in deciding into which class the disabled person is placed.[26]

Compensation is also payable under the Act to surviving members of the family of deceased victims, for the purpose of reconstructing the family life. The amount payable is based on the deceased's average wage and works out to about 70% of that amount. Payments are made for a period of ten years to relatives of the deceased who bore financial responsibility for the deceased.

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[24] See Gresser supra, note 2 at 493. "How Good is the Relief of Pollution Victims" 1977 Task Force Report, 1977 (Japan Federation of Bar Associations, Pollution Measures Committee). The Task Force formed by the Japanese Bar Association made important criticisms of the compensation system generally and the arbitrariness of disease certification was particularly noted in the certification procedure. The victims have no control over who is appointed to the council, the majority of whom are politically conservative.

[25] Gresser, supra, note 2 at 290.

[26] Ibid., at 294 and 490.

Other benefits under the Act include the payment of children's benefits to those persons who have responsibility for afflicted or diseased children. These payments are calculated according to the difficulties the child experiences in day to day living. Medical care payments are also made to cover the cost of commuting to hospitals for outpatient and inpatient treatment, which are calculated on the amount of time spent in hospital and the travel time involved. The cost of funeral expenses for a victim who dies is also paid by way of a flat sum allowance.[27]

Two items which were not included for compensation under the Act were payment for property damage and payment for pain and suffering. Industry lobbied extensively to have these items excluded in the initial debates in the Diet. Government agreed with industry that pain and suffering were part and parcel of the compromise amounts for disability, and that property damage could be better addressed by other ministries which had jurisdictional prerogatives over such matters.[28]

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[27] Ibid., at 295.

The compensation system put into place by the Japanese government has been in operation now for some 20 years. It has been criticized and attacked by both victims and industry. One of the victims' complaints is that the administrative response to health damage caused by specific pollution incidents has been slow. It is felt that negotiations between the various levels of government and industry are too complex and lengthy, resulting in long time delays before decisions are made to resolve claims.[29]

Victims' complaints are also centred upon the standards of certification, and upon the requirement that they must live in a designated area to qualify for compensation. Some people were legitimate victims of pollution, but did not qualify for compensation simply because of where they resided. On the other hand, persons living within a designated area received benefits, even though they might become ill with a non specific disease, such as asthma, which had not been caused by pollution.[30] Class II area complaints were mainly focused on the disease certification process, in that it was too arbitrary and unreasonably restrictive, designed to "exclude the majority of those afflicted with Minamata disease".[31]

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[28] Ibid.

[29] T.Nakano, "Environmental Policies in Japan", in Environmental Policies, ed. C.Park,(London: Croon Helm 1986)259 at 275.

[30] Gresser, supra, note 2 at 307.

Industry complained that benefits had been granted too liberally, and that the Act fostered an excess of applicants for compensation who would have otherwise not come forward.[32] Industry also claimed that the system is scientifically unsound, maintaining that the "polluter pays" principle is not appropriate, and that central and local authorities should have a larger part in financing compensation benefits. Two large industrial conglomerates, the Japan Chemical Association and the Japan Federation of Steel Manufacturers, have lobbied the Environmental Agency for modification of the system, and have questioned whether victims of pollution should be treated any differently than other types of victims.

Another feature of the Japanese system, which poses a problem for both the victims and industry, is that in the specific disease area some of the major companies which were named defendants have become technically bankrupt. The Chisso company, for example, was the named defendant in many of the Minamata law suits, and its compensation payments created a gross deficit of greater than 36 billion yen in

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[31] See Gresser, supra, note 2 at 493, and Marcus, supra note 1 at 198; Teruo Kawamoto, a leader of the victim's movement, has estimated that there may be as many as 200,000 victims of the disease, but of these only approximately 7,000 have applied for certification since 1979.

[32] Marcus,supra, note 1 at 199.

1977.[33] The government, in trying to assist the company to pay off its compensation obligations, issued low interest loans. A system of more intensive screening and certification was also suggested to the Environmental Agency. These measures were seen by the victims as an attempt by government to intervene on industry's behalf, to subvert the polluter pays principle and also to encourage companies to declare bankruptcy.[34]

It is apparent that the Japanese system contains many innovations and practical ideas, some of which could be successfully transposed into a Canadian scheme to improve victim compensation. Obviously, there is a real danger in just transplanting an idea from a totally different legal culture (especially where, for example, as in the Japanese system, the reforms were inspired by four environmental catastrophes). It is submitted, however, that because environmental victims of crime can be equated with victims of traditional crime, then they should receive distinctive treatment[35] and hence, some of the concepts of a foreign jurisdiction might be used to assist them.

The Japanese concepts of flexibility and a relaxation of the standard of proof in the area of causation, for example, are worthy of consideration. The idea of establishing a funding system that is essentially the responsibility of the polluter, also merits attention. On the other hand, some of the objections that we have looked at by both the victims and industry, indicate that the system might benefit from a reappraisal and revision in certain areas, such as improving its administration and shortening waiting periods for victims.

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[33] Ibid.

[34] Ibid., at 200.

[35] See, supra Chapter 11 at 59.

In particular, the omission of pain and suffering as head of damages gives cause for concern, in that it makes the system less than comprehensive. This is an area that has been the subject of controversy in Canadian Crimes Compensation programmes, and one that was examined in the U.S.A. by different study groups. Even though such examinations were conducted mainly within the context of tort actions, it will be helpful to review the proposals that were made by the American groups.

B: The American Approach:

In this section, a number of American proposals for compensating victims of environmental pollution are examined. This overview is designed to extract the most interesting and potentially useful ideas from the various studies. Thus, more emphasis is give to some proposals than others.

Just as in Japan, an environmental disaster of major proportions was required in the U.S.A. to stir up public interest and force government recognition of the potential problems for human health which the uncontrolled disposal of hazardous substances can create. This disaster was, of course, the incident of the infamous Love Canal, in New York in 1978, where tons of hazardous wastes had been buried during the 1940s and 1950s.[36] This material had severely contaminated the groundwater, soil and surface water in the area, and posed a serious threat to human health. Noxious chemicals seeping up through the ground forced hundreds of families to evacuate the area and abandon formerly valuable property.

One of the results of the Love Canal catastrophe was that the U.S. Congress passed an environmental statute (CERCLA) directed at the cleanup of the thousands of toxic waste dumping sites scattered throughout the nation, which posed varying degrees of health risks to the population at large.[37] Other acts were passed in 1982 regulating the manufacture, distribution, storage and disposal of toxic substances, yet none of these statutes (including CERCLA)[38] contained any provisions for victim compensation.[39] Later, however, proposals for victim compensation began to emerge from the study group that was established by section 301(e) of the CERCLA statute.

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[36] W.R. Ginsberg & L. Weiss, "Common Law Liability for Toxic Torts: A Phantom Remedy," (1981) 9 Hofstra L.Rev. 859.

[37] The Comprehensive Environmental Response,Compensation and Liability Act,(1980), 42 U.S.C. (P.L. 96-510). [Hereinafter CERCLA]

[38] See, F.P.Grad, " A Legislative History of the CERCLA Act of 1980," (1982), 8 Colum. J. Envtl. L. 1, at p. 19-21: CERCLA had originally contained provisions for compensation of victims, but these were deleted as a compromise by legislators in order to ensure the act's passage through Congress.

(a) The CERCLA Study Group Proposal:

A Study Group under CERCLA was created for the purpose of assessing the needs of victims suffering from exposure to hazardous substances, and to propose a scheme of federal statutory compensation for these victims.[40] The group confined itself to a study of injuries stemming from the production, transportation and disposal of hazardous substances. It consisted of twelve members selected from the American Bar Association, American Law Institute, Association of American Trial Lawyers and the National Association of Attorneys General.[41]

In its report, the Study Group made several findings with respect to the problems encountered by toxic waste victims.[42] It concluded that, having reviewed the common law causes of action such as trespass, nuisance, negligence and strict liability, the present tort system was ill-equipped to deal with the claims of mass tort litigation.[43]

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[39] See for example: Toxic Substances Control Act (TOSCA) 15 U.S.C. 2601-2629(1982); Resource Conservation and Recovery Act, (RCRA), 42 U.S.C. 3005(a)-6925 (1982).

[40] 42 U.S.C. 9601-9657,(1982) s.301(e).

[41] L.S. Rubenfeld, " Developments in Victim Compensation Legislation: A Look Beyond the SuperFund Act of 1980," (1985-1986), 10-11 Colum. J. Envtl. L. 271 at 274.

[42] The Study Group published its Report to Congress: Injuries and Damages From Hazardous Wastes- Analysis And Improvement of Legal Remedies, A Report to Congress In Compliance With Section 301(e) Of The Comprehensive Environmental Response. Compensation And Liability Act of 1980 (P.L. 96-510) By The

The Group also found that only single plaintiff tort actions based on very large amounts of claimed damages, and commenced by lawyers on a contingency basis, could be afforded by the majority of plaintiffs. Otherwise, the legal costs were prohibitive, and there was, as in most environmental causes of action, the added obstacle of latent manifestation of the disease.[44]

The Study Group proposed a method of compensation somewhat comparable to the Japanese system, in that they suggested a two Tier plan. The first Tier would be limited to damages caused by exposure to hazardous waste sites which came under CERCLA jurisdiction, and to injuries suffered as a result of the transportation or spills of hazardous substances.[45] It recommended an administrative fund created by federal legislation, dispensed by the different states according to federal directives. The basic purpose of this

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"Superfund Section 301(e) Study Group," (1982). (Herein cited as the Study Group)

[43] Study Group Proposal at 57-146.

[44] Ibid. at 178-180.

[45] Ibid. at 191-192: " The compensation plan is not intended to deal with injury from exposure to hazardous substances generally, which are not addressed by CERCLA. The purpose of the compensation plan is to compensate for the adverse consequences of improper disposal, improper transportation, spills, and improperly maintained or closed disposal sites."

fund was to assist plaintiffs who wanted to commence comparatively small tort claims.

The proof of causation problem, so prevalent in these types of actions, was addressed by creating two sets of rebuttable presumptions in Tier One situations. The first set would presume a claimant to have established the source responsible for his or her injury if the claimant proved: (1) that the source produced, transported or disposed of the hazardous waste at the time of exposure; (2) that the claimant was exposed; and (3) that the claimant's injury was "known to result" from such exposure. The second set of presumptions would ease a claimant's burden of proving the third requirement mentioned above, if the claimant's type of injury and the toxic substance to which he or she was exposed were already causally linked in a "Toxic Substances Document" prepared by a federal agency.[46]

Tier Two recommendations related to the improvement of the present tort system as it existed in each state.[47] Six recommendations were aimed at easing the burden of proof and making it easier for a plaintiff to meet specific procedural tort requirements. The Group recommended that States: (1) incorporate a discovery rule into their statute of limitations; (2) adopt liberal joinder rules for plaintiffs to minimize the cost and delay of trying similar issues in separate suits; (3) hold defendants who have contributed to the risk or injury jointly and severally liable because of the impossibility of allocating responsibilities with accuracy in hazardous waste cases (and examine alternative approaches to apportionment);(4) clarify the substantive law of landowner's liability so that past and present owners could not exonerate themselves from liability by selling their property knowing, or with reason to know of, the presence of hazardous wastes;(5) adopt liberal joinder rules for defendants to ease procedural obstacles to the apportionment of responsibility; and (6) adopt a standard of strict liability for actions arising out of the generation, transportation or disposal of hazardous wastes.[48]

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[46] Rubenfeld, supra, note 41 at 276.

[47] Ibid. at 181-182.

The Study Group's proposals were the object of much criticism, most notably by one of the Group's members, Judge Breitel.[49] His main complaint was that the proposals were too restrictive, since they encompassed only situations which fell within CERCLA'S auspices. He warned that:

> Without a global assessment, presumed remedies may be destructive of the benefits and may not alleviate or eliminate costs, as a matter of technology or economics[50]

Judge Breitel's comments on the narrow scope of the study group proposal raise the question of the usefulness of piecemeal remedies when compared to a comprehensive scheme of compensation for environmental victims of all types of hazardous substances. The writer would argue for the latter approach in any proposed solution, since it is always possible to combine piecemeal approaches into a unified whole.

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[48] Ibid. at 277.

[49] Ibid. at 279 -281.

[50] Ibid. at 280.

The recommendations of the Study Group were presented to Congress on July 1, 1982.[51] The federal government was urged to clean up old hazardous waste sites so as to lessen the danger of people suffering exposure to dangerous toxic substances. High on the list of priorities of the Group was the suggestion that, to avoid the need for remedial provisions for the personal injuries of pollution victims in the future, more attention should be given to preventing indiscriminate hazardous waste disposal.[52] The suggestions of the Study Group have been the subject of much academic discussion, but even though it was suggested that there was a "consensus in the Congress for a victim compensation bill",[53] no comprehensive American federal scheme for the compensation of environmental personal injury victims has been enacted to date.

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[51] Injuries and damages from Hazardous Wastes- An Analysis and Improvement of Legal Remedies, A Report to Congress in Compliance with Section 301(e) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (P.L.96-510) by the "Superfund Section 301(e) Study Group".

[52] F.P.Grad, "Remedies for Injuries Caused by Hazardous Waste: The Report and Recommendations of the Superfund 301(e) Study Group". in Recovery for Exposure to Hazardous Substances: The Superfund Section 301(e) Report and Beyond (Washington, D.C.: Public Services Division, American Bar Association, 1983), p.5.

Other institutes in the U.S. have examined the problem of personal injury compensation and have made recommendations for legal changes. Most notable is the American Law Institute's analysis and recommendations for environmental pollution victims contained in its 1991 Reporter's Study.[54]

(b) The American Law Institute Reporter's Study

The first volume of the ALI study is centred on the institutional framework within which the tort system operates. It examines bodily injuries to the person, as dealt with by the tort system. In this context, it devotes a special section to environmental injuries and environmental law.[55]

The aims and limits of tort law and its objectives are analyzed, with emphasis on tort's purported goal of being a tool for providing corrective justice, social grievance redress, compensation/risk distribution, and incentives for prevention. The consensus of this particular section of the report was that tort litigation could play an important role in both deterrence and compensation of environmental injuries.[56]

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[53] See, P.T. Cummings," A Review of Legislative Proposals in the U.S. Senate" Ibid. at 30.

[54] Enterprise Responsibility For Personal Injury, Reporter's Study, 1991, P.C. Weiler, Chief Reporter, 2 vols. (Philadelphia: American Law Institute, 1991). (Hereinafter the ALI study).

[55] Ibid., Vol. 1, Chapter 11.

This optimistic conclusion is somewhat incongruous in light of the admitted difficulty of winning environmental injury cases conceded throughout the report.[57] The writers suggested that because of the growing synthesis between environmental regulation and tort litigation, "methods are available for improving the reliability and predictability of environmental tort litigation."[58] In essence, they suggested that law reform was needed.

These "methods" include, firstly, the creation of a new agency for toxic substances and disease registry (ATSDR), created by the Superfund Amendments and Reauthorization Act (SARA) of 1986.[59] This agency's purpose is to make health assessments on every waste disposal site in the National Priority List.[60] In this way, the expense of proving a causal connection between a hazardous substance and the possibility of disease arising from exposure to that substance would be undertaken by the agency, instead of the private citizen. Secondly, court appointed experts could assist judges in the resolution of major scientific issues, and thus a policy could evolve for the control of "fringe sciences such as clinical ecology", thereby reducing the danger of groundless claims.[61] Thirdly, they suggested that the role of epidemiology (which is the statistical study of disease in human populations)[62] should be increased in the proof of causation, making more significant the relationship between statistical attribution of a disease and proportionate compensation for injury. The Institute also recommended a more flexible approach to the problem of causation by stating that:

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[56] Ibid. at 332.

[57] Ibid., at 321; In commenting on the small number of tort actions that have been brought over recent years...." The answer is that environmental injury tort cases are difficult to win.": and again, at p332 ..." Unfortunately, even when they are based on good scientific evidence, environmental injury tort claims are difficult to win."

[58] Ibid. at 333.

[59] 42 U.S.C. 9601-9675.

[60] U.S.C.9604 (C).

> If we are to take even a modest step toward closing the gap between significant environmental injuries and successful environmental litigation, we will have to entertain seriously the idea of a proportionate causation standard for such cases.[63]

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[61] Vol. II ALI Study, supra, note 54 at p. 333. The report does not elaborate on what constitutes a "fringe science"; presumably the courts would not give much weight to evidence if the credentials of the alleged scientific expert were equivocal?

[62] G. Friedman, Primer of Epidemiology, 2d. ed.(New York: McGraw Hill, 1980), p. 1.

[63] Ibid. at 334. The problem of causative probability has been addressed by several learned legal scholars. See for example, J.G. Fleming, "Probabilistic Causation In Tort Law", (1989), 68 Can. Bar Rev. 661 and "Probabilistic Causation in Tort Law: A Postscript", (1991). 70 Can. Bar Rev. 136. It revolves around the standard of proof in civil litigation cases, which requires a balance of probabilities (more probable than not) to

This last recommendation is significant because the most important generalized evidence of causation is found in epidemiology. The courts' utilization of the science has received severe criticism by some learned writers, primarily because of improper and inconsistent application of data, and failure to recognize its limitations in proving causation.[64] On the other hand, it has its advocates, who maintain that epidemiological evidence can be extremely important when used in attempts to compensate people who are injured. They suggest that epidemiological evidence should not be used as the only element of proof in a plaintiff's case, but it could be used to show a significant relationship between a chemical and a disease.[65]

Volume I of the Institute's report concludes by examining tort and its alternatives, in the environmental injury context, from the aspects of deterrence, compensation, regulatory alternatives and compensatory alternatives. It observes that little legislation in the

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favour a plaintiff's claim.

[64] See, M. Dore, " A Commentary On The Use of Epidemiological Evidence in Demonstrating Cause-In-Fact," (1983) 7 Harv. Envtl. L.Rev. 429 at 440. Dore cites the cases of, Pritchard v. Ligget & Myers Tobacco Co. 295 F.2d 292 (3d Cir. 1961), 382 U.S. 987 (1966) (use of epidemiological studies in attempt to link cigarette smoking with lung cancer); Robinson v. United States, 533 F.Supp.320 (E.D. Mich. 1982) (an attempt to link swine flu vaccine to Guillain-Barre Syndrome).

[65] K. Hall, & E.K. Silbergeld, "Reappraising Epidemiology: A Response To Mr. Dore," (1983) 7 Harv. Envtl. L.Rev. 448.

U.S. has been designed to compensate victims of environmental pollution for personal injuries, other than specific programmes arising out of particular incidents of nuclear pollution. No comprehensive legislation providing compensation for personal injuries has been passed, although the Superfund legislation[66] "may facilitate personal injury suits in the future."[67]

One of the issues discussed in Volume II of the report is the problem of scientific and legal causation in tort. Two leading cases in the U.S. are illustrative in this regard. In Ferebee v. Chevron Chemical Company,[68] the judge concluded that the lack of epidemiological evidence should not prevent a finding of toxic causation in a pesticide action for physical injuries. Contrary to this decision, the judge in the case of In re "Agent Orange" Product Liability Litigation,[69] ruled that large-scale epidemiological studies[70] were required before a finding of toxic causation could be made. In yet another case, the court rejected completely the theory of an expert in ecology about immune injuries.[71]

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[66] The Superfund Amendment and Reauthorization Act, (S.A.R.A.) Pub. Law No. 99-499, 100 Stat. 1613 (1986).

[67] Vol. I ALI Study, supra, note 54 at 427.

[68] 736 F.2d 1529 (D.C. Cir.1984)

[69] 611 F. Supp. 1223 (E.D.N.Y. 1985)

[70] Vol. II ALI Study supra, note 54 at 324, "Epidemiology is the application of statistical techniques to the study of disease in groups of individuals."

As a proposed solution it was recommended, by the Institute, that an impartial panel of scientific experts be constituted to form a Federal Science Board, which would assist common law courts in the presentation and assessment of scientific evidence.[72] The Board would have five main functions: first, it would monitor and keep up to date with toxic substance litigation across the nation; second, it would have an educational function for members of the judiciary; third, it would generate policy for dealing with scientific issues; fourth, it would maintain a list of approved experts that courts could utilize to appoint an expert; and fifth, it would establish scientific panels of experts that would provide information for the courts in mass tort litigation cases.[73] The report noted that these recommendations have some practical problems in their application. As a method of dealing with the submissions of the Board, it was recommended that each submission be open to rebuttal, especially in mass tort litigation actions.[74]

In summary, the report made four proposals to "accomplish the goals underlying existing rules governing environmental liability."[75] In other words, the report singled out specific problem areas connected with environmental litigation and suggested better ways of dealing with these problems. Unlike the Japanese approach, they did not recommend a comprehensive system of compensation, but rather the use of class actions in bringing environmental injury suits.[76]

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[71] See, Sterling v. Vesicol Chemical Corporation, 855 F.2d 1188 (6th Cir.1988).

[72] Vol. II ALI Study, supra, note 54 at 339.

[73] Ibid. at 339-344.

[74] Ibid. at 348.

This concept of a class or representative action in an environmental situation was the subject of judicial review in Canada, in the case of Palmer et al. v. Nova Scotia Forest Industries.[77] In that case, a group of people sought an injunction restraining the defendant from spraying certain areas, claiming that there was a health hazard created by the spraying of pesticide. The judge considered whether a class action was properly brought under the Civil Procedure Rules of the Province and the case law. On the issue of representative actions, it was held that if the plaintiffs and those they represented have; (1) a common interest;(2) a common grievance and (3) the relief sought was beneficial to all, then the test set out by Lord McNaughten in the leading case of Duke of Bedford v. Ellis,[78] was satisfied.[79] It appears that compliance with these three requirements, would enable a class action in an environmental suit to be brought in Canada.

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[75] Ibid. at 381: These goals were; (a) The advocation of science panels and court appointed experts to assist courts in difficult causation issues;(b) broad use of the "discovery rule" as defined in CERCLA, for tolling statutes of limitations, as well as "refined" strict liability standards, relating to abnormally dangerous activities;(c) proportionate compensation based on attributable fractions of disease derived from epidemiological studies and evaluated by science panels;and (d) medical monitoring funding for surveillance and investigation of diseases which may have long latency periods.

[76] Ibid. at 358.

[77] [1983] 2 D.L.R. (4th) 397 (N.S.S.C.)

In a recent symposium on the ALI study, held in the U.S.A. in 1993, several legal scholars gave their opinions and reflections on various proposals in the study.[80] Interestingly, none of the articles was directly devoted to the environmental issues raised by the ALI group, although some comments were made on the efficacy of tort law for compensating personal injuries. There was, however, criticism of ALI's overall approach to pain and suffering, which was that recovery should be retained as a basis of tort damages, but:

> [S]uch compensatory damages should be paid only to victims who suffer significant injuries, with substantial monetary awards paid to the permanently disabled who can use the additional funds to adjust to and better enjoy life in their future disabled state......Meaningful guidelines should be developed to assist juries in assessing such damages. The guidelines should be based on a scale of inflation-adjusted damage amounts attached to a number of disability profiles that range in severity from the

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[78] [1901] A.C. 1 at p. 8.

[79] Palmer, at p.400.

[80] See,V.E. Nolan et al. "Tort Reform Symposium: Perspectives on the American Law Institute's Reporters' Study on Enterprise Responsibility for Personal Injury," (1993) 30 San Diego Law Rev. 213-405.

relatively moderate to the gravest injuries.[81]

A separate commentary on the ALI Study does contain some reflections on that group's recommendations regarding environmental injuries.[82] Professor Sugarman finds that the study's endorsement of probabilistic causation as a method to award proportional damages, is flawed for two reasons. First, because of the long latency periods connected with environmental injuries, present environmental operators are not going to be concerned much with changing their modus operandi. Second, victims would only be partially compensated for their injuries.[83] This aspect of the ALI study and some of its other unique suggestions are discussed by the writer in the following segment.[84]

Some of the more interesting features of the ALI groups' proposals will now be examined to evaluate the potential each might have, not only in the field of tort, but also in any possible comprehensive legislated approach for victims of environmental offences in Canada. Of particular interest is the suggestion that science panels be established. Other areas examined by ALI that needed improvement or revision included time limitations imposed by statutes of limitations, liability standards under different torts and proportionate compensation. These issues will be reviewed briefly.

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[81] Vol. II ALI Study, supra, note 54 at 230.

[82] S.D. Sugarman, " A Restatement of Torts", (1992) 44 Stanford Law Rev. 1163.

[83] Ibid. at 1196.

[84] See infra, note 96 and accompanying text.

(i) Science Panels:

The report suggests that the use of a scientific panel should depend on the number of plaintiffs involved in a particular case. Where one or a few plaintiff's bring an action, a scientific expert would suffice to present the court with an opinion if the opposing expert's opinions were "so polarized as not to be helpful to the disposition of the case".[85] It is the writer's submission that a science panel, if used in this manner, may create more problems than it is intended to solve, and also leaves open probable grounds for appeal.

For example, if the court-appointed expert was less qualified than either of the opposing expert witnesses, or if the court expert sided with one of the opposing experts, without clear scientific foundation, the other side may claim unjustified bias. This could lead to even more expert testimony being called by opposing sides to rebut the court expert's testimony, ad infinitum. Of course, it might be possible to have the parties agree that the testimony of the court expert would be final and binding on all parties. However, this would certainly make the tort approach to environmental compensation even more uncertain than it already is. The plaintiff or defendant not only would have to convince a judge, or judge and jury, of the validity of their claim or defence, but in addition, have expert witnesses concurring with a court expert's findings. This problem has been the subject of debate amongst legal scholars, and does not seem to have any satisfactory solution.[86]

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[85] Vol.II ALI Study, supra, note 54 at 360.

On the other hand, a science panel could be a very useful tool in deciding issues like risk of health hazard or causation. A panel might prove quite effective, for example, in a situation where such issues are to be ruled on strictly for the purposes of determining the eligibility of applicants under a legislated scheme of compensation for environmental personal injury victims. Depending on the structure and scope of the panel it would be feasible to utilize its expertise constructively.[87]

(ii) Statutes of Limitations:

The modifications proposed in relation to limitation periods address the problem of when the time limitation starts to run in any particular claim. In many states, limitation of actions statutes were drafted in terms of when an action "accrued", which is when the wrongful deed of a defendant was perpetrated on a plaintiff. This interpretation led to problems in toxic or health-hazard-induced diseases, since symptoms may not become manifest for years after exposure to the toxic substance. Most states have circumvented the problem by passing "discovery rules", which in effect starts the statute running from the time that the victim first manifests the symptoms of a disease, or discovers that he or she is suffering from a particular disease which may have been caused by exposure to toxic waste.[88] This approach has been adopted by at least thirteen states, where the statute starts the time limit running from the time the injured party can ascertain a causal connection between the injury and the earlier exposure, or from the time when the injured person should reasonably be able to do so.[89] Most U.S.courts have developed a flexible approach to time limitations for plaintiffs in toxic injury cases.[90] The federal position is set out in the 1986 amendments to CERCLA, where the effective date is when the plaintiff knew or reasonably should have known that the personal injury "...[was] caused or contributed to by the hazardous substance or pollutant or contaminant concerned".[91] The rule of "reasonable discoverability" is quite similar to the CERCLA recommendations and has been effect in Canada for some time.[92] It could be advantageously be incorporated into a model statute and made more flexible as in the U.S. approach.

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[86] T.A. Brennan, "Helping Courts with Toxic Torts", (1989) 51 Univ. of Pittsbg. Law Rev. 1, at p. 59-62.

[87] See infra, Chapter 5, note 20 and accompanying text for a more comprehensive discussion.

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[88] See, Note; "Statutes of Limitations and Pollutant Injuries: The Need for a Contemporary Legal Response to Contemporary Technological Failure." (1981) 9 Hofstra L. Rev. 1525. (This note proposes that there be a uniform statute of limitations for pollution injuries.)

[89] Senate Committee on Environmental and Public Works, 97th Congress., 2d Sess., Injuries and Damages from Hazardous Wastes-Analysis and Improvement of Legal Remedies, Part I: The Report and Comments (1982) at pp.111-114.

[90] ALI Report Vol II supra, note 54 at 363.

(iii) Liability Standards:

The standard of liability can vary, depending on the type of tort under which any action is brought. In negligence cases, for example, the plaintiff has to prove that the defendant owed a duty of care, that the act complained of was unreasonable and that the defendant should have foreseen the consequences of the particular activity. The ALI study group recommended that a standard of absolute liability be imposed in environmental injury cases, where the substance or activity causing the injury was an "abnormally dangerous" one. They modified this somewhat by suggesting that a "state of knowledge" defence be open to a defendant, where the current scientific data did not indicate that the activity or substance posed a significant risk to human health.[93] This is somewhat akin to the Canadian concept of "strict" liability, where the defence of reasonable care is available to the defendant.[94]

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[91] 42 U.S.C. 9658(a)(1) and 9658 (b)(4)(A).

[92] See, Limitations, Report for Discussion No.4. (Edmonton, Institute of Law Research and Reform, 1986), at 107 et seq. for an in-depth analysis of the discoverability rules in limitations acts.

(iv) Proportionate Compensation:

In this area, the ALI group reviewed the problem of proof of causation by a 'preponderance of evidence'. The problem lies in the fact that where a polluter's likelihood of responsibility for a disease or injury can only be expressed in terms of statistical or epidemiological evidence (short of fifty percent), the plaintiff would not succeed under the traditional standard of proof.

The suggested solution was to provide compensation based on the attributable fraction of causation, in those cases where the epidemiological evidence was "mature".[95] The recommendation of the group was based on the studies done by several commentators who advocate proportionate liability based on probabilistic causation.[96] The group recommended after the fact probabilistic causation, and proportionate liability, if subject plaintiffs belonged to a certified class of victims.[97] This approach also is worth consideration for any environmental victim compensation scheme. It gives both the offender and the claimant equal possibilities of proving or defending the degree of liability.

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[93] ALI Study Vol II, supra, note 54 at 368.

[94] See supra, Chapter 2, notes 26, 27 & 28 and accompanying text.

[95] Vol. II ALI Study, supra, note 54 at 375.

[96] See, T.A.Brennan & R.F. Carter, " Legal And Scientific Probability of Causation of Cancer and Other Environmental Disease in Individuals," (1985), 10 Journal of Health Politics, Policy and Law, 33; D.A.Farber, "Toxic Causation", (1987) 71 Minn. Law Rev. 1219; R.Delagado, " Beyond Sindell: Relaxation of Cause-in-Fact Rules for Indeterminate Plaintiffs, (1982) 70 Calif. Law Rev. 881; D.Rosenberg, " The Causal Connection in Mass Exposure Cases: A Public Law Vision of the Tort System,"

Each of the recommendations has certain merits and also disadvantages. In its efforts to improve the tort system of compensation, the ALI group was limited by its overall approach; namely an attempt to change from within a system which was basically not designed to deal with environmentally induced injuries. This problem was recognized by another group, the U.S. Environmental Law Institute, in its project to analyze the need for reform in the law governing injuries caused by toxic substances.

(c) The Environmental Law Institute Report:[98]

The basic outcome of the ELI report was the creation of a Model Statute, which had as its focal point chronic diseases caused by hazardous chemicals. Suggestions for

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(1984) 97 Harvard Law Rev. 849; G.Robinson, " Probabilistic Causation and Compensation for Tortious Risk," (1985), 14 Journal of Legal Studies 779.

[97] ALI Vol II , supra, note 54 at 374.

[98] See summary by J. Trauberman, Statutory Reform of "Toxic Torts" Relieving Legal, Scientific, and Economic Burdens On The Chemical Victim (Washington, D.C.: Environmental Law Institute, 1983). (Hereinafter the ELI report).

reform in this area, which were incorporated into the Statute, included:(i) a non-restrictive statute of limitations for toxic injury claims;(ii) expansive evidentiary rules; (iii) incentives for disclosing information about hazardous chemicals;(iv) modified principles of causation;(v) the establishment of a hazardous substances victims' compensation fund, financed by industry and government; and (vi) "no-fault" compensation.[99]

The majority of the foregoing recommendations pertain to areas which the CERCLA and ALI study groups emphasized as being most in need of reform. Therefore, rather than reviewing each of these areas of proposed reform again, only those items which neither of the previous study groups dealt with in their reports are examined below. The first of these is the recommendation to create incentives to disclose information about hazardous chemicals, and the second is the principle of "no-fault" compensation.

(i) Incentives for Disclosure of Information about Hazardous Chemicals:

The primary section of the Model Statute dealing with this topic reads in part as follows:

Section 207: Notification of Exposed or Harmed Individual.

> (a) Any person who **provides notice to an individual in advance of such individual filing any claim or action**

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[99] J. Trauberman, " Statutory Reform of " Toxic Torts": Relieving Legal, Scientific and Economic Burdens on the Chemical Victim," (1983) 7 Har. Envtl. L. Rev. 177.

> **for damages** against such person for a covered disease allegedly caused by exposure to a chemical substance or mixture, **may limit his liability in such action** for such covered disease to those damages representing, in the best estimate of the trier of fact.....the present worth of the compensation benefits which otherwise would be paid to such individual under section 206 **except**:
>
> (1) where the chemical substance or mixture in question is a hazardous chemical substance or mixture; and
>
> (2) (A) the person in question **willfully and wantonly caused the individual in question to be exposed** to such hazardous chemical substance or mixture for a duration or in a quantity, or under such circumstances, which were proscribed or prohibited at the time of such exposure by any federal standard specified in ...;or
>
> (B) the person in question knew there was a substantial possibility of harm to the individual from such exposure and **fraudulently concealed** this from the individual; or
>
> (C) the person in question **does not agree to pay the damages** specified under this Title **within six months** after the action or claim for such damages has been filed.(emphasis added)

This section is designed to encourage early disclosure of potential harm by reducing the liability for injuries. Additionally, the defendant cannot claim limited liability if there is a refusal to pay specified claimed damages within six months after an action is filed.

The first two exceptions (wilful and wantonly causing an individual to be exposed, and fraudulently concealing the danger of exposure) barring the limited liability claim of a defendant arose from extrapolation from worker's compensation cases.[100] Many jurisdictions in the U.S.

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[100] See, Johns-Manville Prods. Corp. v. Contra Costa, 27 Cal.3d 465(Sup.Ct.)

recognize that an employer cannot claim immunity from suit under worker's compensation statutes, if an intentional wrong has been committed.[101] The third exception encourages a potential defendant to settle a claim for specific damages within a fixed time period. If the defendant does comply with this proposal, then the plaintiff cannot obtain damages for pain and suffering. Thus, "the defendant could limit his or her liability to worker's compensation-type benefits."[102]

In commenting on this section, Trauberman rightly notes that a potential defendant has to consider whether notification may result in establishing a definite causal connection, tying the defendant to the plaintiff's injury.[103] He argues that it would not be reasonable for a defendant to disclose information which would, in essence, increase liability and financial risk. Counterbalancing this consideration is the idea that a defendant, threatened with large recoveries, would be encouraged to settle for a lesser but predictable sum, by disclosure of the hazard and an offer to pay specific damages.

(ii) "No-Fault" Compensation

The relevant section of the proposed Model Statute reads.

Section 201 **Liability:**

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[101] Trauberman, supra, note 99 at 269.

[102] Ibid. at 269 note 464.

[103] Ibid. at 225 note 289.

> Except as specified in section 202(a),any person or persons whose action, conduct, failure to act, or omission:
>
> (1) causes or is a substantial factor in causing exposure of an individual to a hazardous chemical substance or mixture; and
>
> (2) such exposure causes or is a substantial factor in causing a covered disease in such individual, **shall be strictly liable** to such individual for the full extent of the damages to such individual.(emphasis added)

This section is modified somewhat by section 202 of the Act, which allows a defendant to claim limited liability where there is a reasonable basis for apportioning harm to various contributing sources. However, the underlying rationale for the imposition of strict liability in the Model Statute lies in three basic difficulties plaintiffs have to confront (when bringing an action in tort) under the concept of "reasonableness", which pervade common law standards of liability.[104]

The first problem confronted by a plaintiff when the courts attempt to apply the principle of "reasonableness" to determine whether a defendant's conduct is actionable, is where the courts look at the defendant's behaviour retrospectively.[105] To establish fault, the plaintiff has to show that the defendant's conduct was unreasonable at the time of its occurrence, which can involve a great deal of research by experts at the plaintiff's expense.[106] Secondly, the plaintiff has to contend with the interests of the general public, as opposed to the litigant's private interests, and when a court looks at societal interests to support the defendant's conduct, it has been noted in the U.S. that "predictably, the individual plaintiff tends to lose."[107] This, is also often true in Canada although there are exceptions.[108] For example, in nuisance actions, a private individual may show that even though the nuisance affected the general public, it is also possible to recover damages as an individual if the nuisance affects a plaintiff in a particular manner.[109] The third major problem in the area of "reasonableness" lies in attempts by the courts to perform a cost-benefit analysis in individual cases. This often results in arbitrary decisions made in an area that is often beyond the boundary of a court's expertise.[110]

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[104] See, J. Trauberman, " Risk-Benefit Analysis in Environmental Law: An Overview," (1981) 3 J. Envtl. Prof. 217.

[105] See Ginsberg & Weiss, supra, note 36 at 886-920.

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[106] See, S.S. Epstein, " The Role of The Scientist in Toxic Tort Case Preparation", (1981) 17 Trial, No.7 38 at 41. " The expert witness for the plaintiff should also be prepared to analyze the qualifications of the experts for the defense...." This would add to the expenses incurred in obtaining an expert witness for the plaintiff, since he or she would have to give an opinion as well as assess the quality of the defendant expert's opinion.

[107] Trauberman, supra, note 99 at 195.

[108] See, B.Bilson, The Canadian Law of Nuisance,(Toronto: Butterworths, 1991) at 32, for a discussion of the criteria for assessing nuisance.

[109] See, Hill v. Vernon (City) (1989), 43 M.P.L.R. 177 (B.C.S.C.). If a company discharges effluent into a lake and that effluent prevents the public from using the lake and surrounding beaches for recreational purposes, that is a public nuisance. If, however, the effluent begins to wash up on the shores and docks of a cottage owner, that owner will have the right to sue in private nuisance.

In personal injury situations, many academics have long advocated the abolition of parts or all of the tort system, in favour of no-fault compensation plans, modeled on worker's compensation schemes.[111] The main objection to the fault principle has perhaps been expressed best in the words of one learned writer who says:

> The main objection to the principle is that compensation for the accident victim is made to depend not simply on his losses, his need, or the merits of his conduct, but on the largely fortuitous circumstances of whether he can blame anyone. Conversely, the condemnation of the defendant is made to depend not so much on the culpability of his conduct as on its largely fortuitous consequences.[112]

Those who are in favour of no-fault compensation schemes are "primarily motivated by concern for uncompensated victims-those people for whom tort law fails to provide a satisfactory remedy."[113] Some of the proposed schemes include different categories of accidents or injuries, brought about as a result of varied social and economic activities.[114] Arguments for a no-fault system of compensation are based on the premise that the process for determining fault is generally biased against the person injured, and it presents valuation problems for the courts, encouraging "excessive judicial deference to easily quantified costs".[115]

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[110] See, D. Baseline, " Science and Uncertainty: A Jurist's View, (1981) 5 Harv. Envtl. L. Rev. 1. He suggests that judges should restrict themselves to policing the processes of environmental decisions.

[111] S.D. Sugarman, Doing Away With Personal Injury Law, (Westport, Connecticut: Quorum Books, 1989), at 101.The prime example of a universal scheme of no-fault coverage is contained in New Zealand's, Accident Compensation Act of 1972. However, although that Act covers all cases of personal injury or accident without inquiry into fault, the major drawback in terms of coverage, is that disabilities and deaths resulting from disease are not generally covered. See, Ison T. The Forensic Lottery, (London: Staples Press, 1967) at 7-8.

[112] Ison, at 9.

Other contentions of many advocates of tort reform, or tort abolition in personal injury cases, are that the cost of administering the tort system generally is exorbitant, and that a no-fault system would be cost-internalized. In other words, accident costs would be allotted generally to those responsible, thus incorporating the "polluter pays" principle.[116] Clearly, the ELI found the arguments in favour of a no-fault scheme to be compelling.

These two particular ELI proposals for reform -a no-fault scheme and disclosure incentives- as contained in the Model Statute, might merit consideration for inclusion in any proposed "general" comprehensive scheme for pollution victims. Indeed, the no-fault provisions are currently reflected in some State statutes;[117] particularly notable and expansive in this regard is the 1984 California statute,[118] which has been suggested as being a model statute for other states.[119] However, the privilege against self incrimination in the U.S. may conflict with disclosure and since this study is primarily concerned with victims of environmental "offences", a no-fault concept would be incongruous. Further, the disclosure of offences would provide incriminating evidence against an offender and might run counter to the principles of fundamental justice.[120] Hence, these suggestions by ELI would not be useful under any Canadian scheme.

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[113] Sugarman, supra, note 111 at 102.

[114] See for example, R.A. Merrill, " Compensation for Prescription Drug Injuries" (1973) 59 Va. L. Rev.1; L.Treiger, " Relief for Asbestos Victims: A Legislative Analysis", (1983) 20 Harv.J.On Legis. 179.

[115] Trauberman, supra, note 99 at 247.

[116] Sugarman, supra, note 111 at 102.

C: The Canadian Approach

As in the U.S.A., there is not any comprehensive legislation in place in Canada which deals exclusively with compensation for injuries suffered as a result of exposure to environmental pollution. There are, just as in the U.S.A., piecemeal statutory attempts to address the problem, both at the provincial and federal levels. These efforts are contained in provisions for compensation for injuries resulting from a violation of certain sections of environmental statutes.[121]

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[117] Alaska Stat. 46.03.822; Minn.Stat. 115 B.05 (Supp1985)

[118] "Hazardous Substance Account Act" Cal. Health & Safety Code 25300-25395,(West 1984 & Supp 1985).

[119] Rubenfeld, supra, note 41 at 283.

[120] Canadian Charter of Rights and Freedoms, Part I of the Constitution Act, 1982 being Schedule B of the Canada Act 1982 (U.K.), c.11. ss.11(c) and 13. See, Thompson Nespapers Ltd. v. Canada (Director of Investigation and Research, Restricting Trade Practices Commission [1990] 1 S.C.R. 425. The Supreme Court of Canada pointed out that ss.11(c) and 13 of the Charter,clearly point to the fact that the privilege or right against self-incrimination, sometimes referred to as the right to silence, forms an integral part of the principles of fundamental justice under our legal system.

An early attempt to address the Canadian situation, is contained in a 1981 study by Swaigen.[122] The author commences his study by demonstrating the need to improve compensation systems in the area of environmental pollution. He points out that an important function of the legal system is to redress injury or harm, but that the cost to society of providing compensation must be considered in any scheme of injury reparation.[123] Swaigen has little doubt that a comprehensive system for compensating pollution victims should be established. He argues that the reason why such a scheme has not been established in Canada is because of the "tension" between equity for victims and equity for the polluter, which he equates with industry.[124]

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[121] See, Environmental Protection Act, R.S.O. 1980, c 141, ss 87 (2) (a) , 87 (5), 87 (6),; Transboundary Pollution Reciprocal Access Act R.S.O. 1986, c.10, s.3; Arctic Waters Pollution Prevention Act, R.S.C. 1985, c.A-12, ss.6. 7(1); Canada Shipping Act, R.S.C. 1985, c.S-9, ss 661(1) (c), 661 (d) , 661 (2), 661 (4), 662 (1) , 674(1) ; Fisheries Act, R.S.C. 1985, c.F-14, s.42(3).

[122] Swaigen J. Compensation of Pollution Victims in Canada: a Study prepared for the Economic Council of Canada, (Ottawa: Ministry of Supply and Services, 1981).

[123] Ibid. at 6.

Swaigen suggests that there may be a number of alternative ways to retain a degree of deterrence without sacrificing the goal of timely compensation. One way would be to retain the tort system, but in a modified form. He suggests that government could be interposed between the polluter and the plaintiff. In other words the victim would be compensated directly by the government, which would be subrogated to the rights of the plaintiff, and pursue the defendant by using the courts to recover from the polluter any monies paid to the victim. In this way the "opponents would be more evenly matched".[125]

Another method that Swaigen suggests could be established, would be the imposition by the government of "load levies"[126] as practiced under the Japanese Compensation Law.[127] Swaigen believes that this system might provide an "acceptable" level of deterrence, and that industry's financial responsibility for pollution would be made more certain.[128]

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[124] Ibid. at 73.

[125] Ibid.

[126] Ibid. at 69, "The pollution load levy is calculated as being equal to the measured amount of emissions of a designated substance during the preceding calendar year multiplied by the "per unit levy" in Japanese yen of the emission of the designated substance".

[127] Pollution-Related Health Damage Compensation Law, Law No. 119, October 1973, as amended in June 1974.

Some of the considerations that must be given to designing a compensation scheme are inevitably connected to the primary goals of any such system. Some consider the most important of these goals to be: firstly, the establishment of a system which provides fair, fast, full compensation to the victim; and secondly, a system which will result in a cleaner and safer environment.[129] Swaigen points out that this combination of goals produces a system wherein the compensation of the victim plays a secondary role to attaining regulatory control. He also emphasizes the fault principle: it makes for a compensation system funded by the polluter, who should be directly responsible for any injuries which result from pollution activities, regardless of whether they are allowed by statute to any diminished degree.

Swaigen states that there are two basic approaches to designing a comprehensive compensation system. The first is to evaluate suggested systems based on the hierarchy of goals, such as efficiency and deterrence. The second approach is to examine such systems in terms of their remedial content, to see how well they could repair defects in the existing systems, which include tort actions, and "private insurance, voluntary programmes established by high risk industries, and a variety of statutory schemes, each limited to a narrow subject matter."[130]

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[128] Swaigen, at 73.

[129] Ibid. at 7.

Swaigen concludes that a "mixed" system funded by industry and administered by government is probably the best solution for victims of pollution in Canada. He bases his conclusion on the premise that not to do so would create a society where the compensation of people depends on the vagaries of how they receive personal injury. In other words he is saying that compensation should not depend on how victims receive their injuries, whether in an automobile accident, an assault on the person, or as a result of an environmental injury. He agrees with those that think that all victims should be compensated under a social assistance programme regardless of fault, or how the injuries were received. His objection, however, is that such a system relieves the polluter from the obligation of paying for the consequences of the pollution created; the burden falls too heavily on society, which does not share directly in the polluter's profits.[131] He sets forth his position as favouring a system in which the initial goal of full, fast and fair compensation should be given priority and:

> ..... far greater weight than deterrence, but retains a mechanism for allocating costs of the system to industrial sectors, and a mechanism for recovering the full costs of particular incidents

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[130] Ibid. at 43-45.

[131] Ibid. at 73.

from the specific person or persons responsible.[132]

Swaigen's "mixed" system, he suggests, might include some of the following features. First, all industries would pay a low basic levy even if their operation posed no serious threats to the environment or to human health. This levy he considers as a form of insurance to protect against the discovery that, what is today environmentally innocuous, may prove tomorrow to be environmentally insidious. Second, he recommends that industries that are engaged in obviously high risk operations should pay an increased levy that reflects the degree of such risk. Third, if any particular industry obtains a poor "track record", for example, because it consistently violates environmental statutes or failed to take advantage of new pollution reduction equipment, then it would be required to pay a "surcharge", providing that this penalty could always be the subject of judicial review on appeal. Fourth, there could be provision for government payments to subsidize the fund if insufficient revenue was generated by the levies and surcharges. (Swaigen, however, questions the rationale for government subsidies, which is based on the assumption that because society as a whole benefits from products and services that generate pollution, it should share the cost of compensation for pollution).[133] As a fifth feature, the victim might be required to absorb some of the cost of compensation either by pro-rationing of the funds, or by paying a "deductible". This may be necessary, says Swaigen, where the imposition on industry proved to be too great, although he doubts whether such a requirement would be necessary unless there were mass environmental catastrophes. Finally, "as a residual contingency", he suggests that a victim could retain the right to sue the polluter for any portion of loss that was not fully covered by the fund.[134]

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[132] Ibid. at 75.

[133] Ibid.

Swaigen is primarily concerned that the cost of administering any compensation scheme should be reflected in the ultimate effect such a scheme might in reducing pollution at its source. He finds it difficult however, to decide whether a compensation scheme should keep deterrence as a secondary goal, or to "eschew it entirely".[135]

The best features of Swaigen's plan are his suggestions regarding the "polluter pays" principle. A levy or tax designed to fund a compensation scheme seems to operate fairly well in the Japanese situation, and his idea that a high risk operation should pay a proportionately higher fee makes sense. Swaigen's idea of modifying the tort system to allow government to be interposed between the plaintiff and the defendant also has merit and if the tort system is to be modified, then this approach is probably feasible. It does not, however, address the problem of funding the government coffers for the purpose of making payments to victims prior to any recovery of funds. Furthermore, the likelihood of the tort system being modified just for the purposes of making it easier for pollution personal injury victims to bring suit, would not appear to be something that may happen in the immediate future in Canada.

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[134] Ibid.

[135] Ibid. at 74.

Conclusion:

In summary, it is apparent that existing and proposed alternative methods of dealing with the problem of victim compensation in Japan, the U.S.A. and Canada contain some feasible concepts as well as some problematic elements. Many of the concepts are directed to easing the plaintiff's burden in tort actions. Recommendations, such as lowering the standard of proof, accepting epidemiological evidence, easing proof of causation, and the extension of time limitations, all enhance the chances for some environmental victims to receive compensation in tort cases. However, as discussed in Chapter II, there are reasons to doubt that tort law will achieve this goal. The suggested reforms would largely address the 'balance of probabilities' problem, but they would not necessarily address some of the other significant problem areas. The cost involved in bringing a tort action may be prohibitive, while the time delays often encountered are discouraging. Generally speaking, the tort system does not often provide Swaigen's goals of "full, fast and fair compensation".

The implementation of the Japanese victims' compensation scheme was not without problems, but it does have positive features, especially in the area of connecting tort law with administrative relief. It is a fairly balanced approach to compensation of environmental victims, and it did not take away the victim's right to sue.[136]

In the Japanese system, the classification of victims by designated areas was a method of coping with the particular nature of the pollution disasters. This concept would not be particularly appropriate for inclusion in any Canadian scheme of environmental victim compensation. However, the concept of classification might well be used for the purposes of designating degrees of hazard or health risk of any environmental operation.

Another feature of the Japanese system that makes it less than comprehensive is the omission of pain and suffering as a head of damages. Unfortunately, like Canadian Crimes Compensation schemes, the Japanese have largely ignored the pain and suffering aspect of victims' injuries.

This aspect of compensation has been more openly acknowledged in the U.S.A. Recognition, however, has not been accomplished through its inclusion in a compensatory scheme, but rather by suggesting a more flexible standard of proof of causation in its approach to environmental tort cases. Some of the American proposals, such as the establishment of a science panel and a Toxic substance list, together with certain of the concepts contained in the model statute, might well be utilized to form the basis of a Canadian compensation system focussed on victims of environmental crime, which we will next examine.

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[136] Ibid. at 201.

In Canada, some analysts see the deterrence aspect of compensation as an added tool in the regulatory control of environmental polluters, notwithstanding the observation made at the time of the Canadian study, that legislation and regulation in the environmental context had been used with moderate effect.[137] Swaigen's ambivalence towards deterrence is understandable, given the time frame of his study, which was done in an era when the penalties for environmental offences were not very severe.

Since 1981 however, the toughening of environmental laws, by way of significantly increased penalties for offences, addresses some of the concerns in the area of deterrence. Overall, Swaigen's study contains many sound proposals that are still relevant for a Canadian scheme. For example: the "polluter pays" principle, based on a sliding scale of environmental risk to the health of people, is very appropriate at the present time, given the increase in the use of hazardous and toxic substances; the idea of a "surcharge" on companies with a record of repeated environmental offences is also a feature worthy of consideration; the idea that a victim should retain the right to sue the polluter for any portion of loss not covered by the fund is both practical and sensible; and the suggestion of a "deductible" fee payable by a victim might be instrumental in discouraging claims for insignificant injuries that would only be nominally compensable.

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[137] D.P. Emond," Accountability and the Environmental Decision-Making Process: Some Suggestions for Reform," in Environmental Rights in Canada, ed. J.Swaigen, (Toronto: Butterworths, 1981), p. 408.

It becomes apparent from the work that has been done in various jurisdictions relating to compensation for environmental victims, that many different approaches to the problem have been considered over the last ten to twelve years. In the final chapter it is proposed to modify some of the concepts from these methods, studies and proposals, and to integrate them into a proposed model statute of compensation for Canadian victims of environmental offences.

CHAPTER 5.

COMPENSATING ENVIRONMENTAL VICTIMS: A PROPOSED NEW METHOD.

Introduction

Thus far, we have seen that the potential exists in Canada to create victims of environmental offences. In comparing these victims with victims of violence, we have noted that there are similarities based on sociological perspectives, as well as a common denominator of trauma suffered through personal injury. We have also examined some possible methods of compensation for both types of victim, such as restitution, tort actions and crimes compensation schemes, none of which have proved satisfactory. In the previous chapter, some alternate approaches to compensating environmental victims were examined. Although these methods had some drawbacks, they also contained some distinct improvements on the present options.

It will be purpose of this chapter to review some of the provisions of the Japanese legislation, along with the more flexible U.S. and Canadian proposals, that could be utilized and incorporated into a new draft Canadian model of compensation. The concept of treating environmental victims as a deserving class of victim in need of an improved method of remedies will be emphasized. To do this, we will highlight the principal issues involved in the formulation of an improved method for compensating personal injury victims of environmental offences. The suggested resolution of these major problems will provide a base for the drafting of new legislation that the writer sees as necessary for Canadians in this area.

The chapter is divided into three sections. The first section briefly reviews the reasons why environmental victims are deserving of compensation, and why the existing methods of compensation should be improved. The second section will examine significant problems of substance (some of which have been addressed by Japan, the U.S.A., and Swaigen's proposals) including such questions as: Who should qualify to receive compensation? What losses and injuries should victims be compensated for? Who should pay for their compensation? How should the funds be administered? The third section presents provisions that could be contained in a draft Bill addressing the compensation of victims of environmental offences.

Before examining the major questions relevant to the formulation of a draft Bill, a review of the rationale behind any proposed scheme should be carried out. Thus, the first section will review the question whether environmental victims deserve compensation, and the need for changing the methods of compensating personal injury victims of environmental offences.

A:

(a) Are victims of environmental offences deserving of compensation?

The primary question of "deservingness" must, of course, be resolved before any attempt is made to improve the manner in which compensation may be achieved. It has been argued in this study that, although most environmental victims are not victims of criminal acts (in that a criminal act requires the element of mens rea be present) the nature of the harm done by environmental offences puts them on par with victims of criminal offences. Environmental victims are essentially no different from victims of violence.

It may be argued that there is really no need for a special compensation scheme for victims of environmental offences. For example, if such victims become ill, then, in Canada at any rate, they are eligible for hospitalization and medical assistance under health care systems. If they lose time from work, then unemployment insurance or private disability insurance is available to them. If they are not working, there are social welfare programs to fill their immediate financial needs. Such arguments may be valid, since these avenues of compensation are available to victims of other types of injury or sickness.

Surely it would be inequitable, however, to place a further burden on these already overloaded systems by adding another class of victims as possible beneficiaries and recipients of assistance. This would be especially unfair when one considers that the victimization is often perpetrated by a segment of society (such as industry) that makes a profit from operations that create health hazards (and subsequently victims) by its pollution practices.

Environmental victims suffer injury, sickness, or disease as the result of either a direct or indirect assault against their person. Such circumstances would seem to justify the need for a compensation system that does not require that the victim be the victim of a crime in the traditional sense. A compensation system should not differentiate between the types of victim, but be based on the reality that a person has suffered from an offence committed by another individual or corporate entity.

Canada's crime victims' compensation schemes are recognized throughout the world as a major societal response to victimization[1]. As already pointed out, many reasons are proffered for their existence[2]. It is suggested that the social and moral obligation of society to its victims alone could well justify legislating a scheme for victims of environmental offences. However, one important modification would need to be made: since environmental victims may be victims of the acts of segments of society (such as industry) that profit from acts of pollution[3], payment of compensation should be made by environmental offenders, as is the situation in Japan,[4] instead of society as a whole.

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[1] See, J. Hagen, Victims Before The Law (Toronto: Butterworths, 1983) at pp. 186-187.

[2] See, supra, Chapter 3, pp.99-116, for discussion about the rationales for Crimes Compensation Schemes.

In this matter of compensatory worthiness, it is the writer's opinion that the health and welfare of citizens must be a prime consideration. If all the precautions taken by both industry and government are insufficient to prevent the creation of health hazards by pollution, then a method must be devised to compensate the victims for injuries that, in the words of Swaigen, is fair, fast and provides full compensation.[5] This system of compensation should exist as an independent source of assistance for environmental victims, since existing methods examined in this study are found wanting and are generally unsatisfactory.[6] Violent crime enacts an enormous toll on victims by way of financial loss, pain and suffering, and psychological damage.[7] Since environmental victims are akin to victims of violence they should also deserve compensation. Hence, the present methods of redress should be improved.

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[3] Although such acts may be regulated by statute, in certain circumstances,(where for example a standard is breached or the rate of emission is exceeded) they may constitute environmental offences that are sanctioned by fines or imprisonment. They do not contain the element of mens rea, but are serious enough to warrant penalties similar in substance to criminal penalties and normally do require fault. Such acts are environmental offences committed by polluters, who should pay for the harmful results of their pollution.

[4] See, supra, Chapter 4, p.153 note 18 and accompanying text.

[5] J. Swaigen, Compensation of Pollution Victims in Canada: A Study prepared for the Economic Council of Canada (Ottawa: Ministry of Supply and Services, 1981) at 7.

[6] See supra, Chapters II and III.

(b) The Need to Change Methods of Compensating Personal Injury Victims of Environmental Offences.

We have seen that restitution, as a possible way of compensating injured victims of environmental offences, is not really feasible. The courts do not fully accept the idea that restitution to victims, as opposed to rehabilitation of offenders should be a sentencing objective. The law of restitution to victims of crime has been described as being in a rudimentary state, because no link has been made between restitution and the purposes of the criminal law.[8]

The tort system is also unsatisfactory to environmental victims. The primary difficulties in tort are the cost involved in bringing an action, and the legal difficulties attendant upon standard of proof and causation. In most cases, damages are awarded only when it can be proved that the injury was caused by the negligent action of another person. The legal remedy is available to a victim only if certain conditions are fulfilled relating to the circumstances under which the injury was received. For example, the defendant must be found legally responsible for causing the injury.[9] Proof is required on a "balance of probabilities", and any injuries suffered by a plaintiff must be "reasonably foreseeable" as the result of the act committed by the defendant. All of these requirements make tort especially difficult for the victim of an environmental offence seeking compensation for injury, sickness or disease.

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[7] M.S. Greenberg & R.B. Ruback, After The Crime: Victim Decision Making (New York: Plenum Press, 1992) at 2-3.

[8] See, K. Chasse, "Restitution in Canadian Criminal Law", (1977) 36 C.R.N.S. 201.

An attempt to use the crimes compensation legislation to compensate environmental victims may also prove futile. This is because of rigid statutory requirements and the small monetary amounts of awards to victims. In any event, it is unlikely that environmental victims would ever be considered as victims of violent crimes for the purpose of being eligible for compensation under crimes compensation schemes. Even though victims of violence are not defined in the Acts, the category of victim conceived of by Canadian legislation in this area[10] is the "traditional" victim of violence, despite arguments to the contrary.[11]

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[9] See, D. Harris, et al. Compensation and Support for Illness and Injury (Oxford: Clarendon Press, 1984,) at 145.

[10] The Secretary of the Alberta Crimes Compensation Board, advised, that to her knowledge, there have never been any attempts by victims of environmental offences to attempt to claim compensation from any of the Crimes Compensation Boards in any Canadian jurisdiction. She was of the opinion that environmental offences would never be categorized as crimes of violence under the Alberta Act.(Personal interview, November 1993, Edmonton, Alberta).

(c) The current position of Environmental victims.

In Canada, victims of environmental offences are therefore in this situation. First, the potential exists for the creation of such victims, because of the health hazards that certain existing practices of polluters may bring about. Second, some of the health hazards created may be extremely dangerous and could detrimentally affect not only single individuals, but also the health of large numbers of people. Third, the health hazards that are created may be the result of the commission of an environmental offence by a polluter, even though the misconduct is not a criminal offence under the Criminal Code of Canada. Fourth, such victims may suffer all the trauma of traditional victims of violent crimes, but are not eligible to receive compensation under any of the Crimes Compensation schemes in Canada. Fifth, the restitution provisions of the Criminal Code are not frequently used by the courts, and because of the difficulty in assessing damages for environmental victims, would not be adequate to meet the function of restitution as envisaged by the offender-oriented courts. Sixth, the tort system is more or less an empty shell as a possible method of compensating environmental victims. Seventh, the problems of proof, causation, latency, and time limitations, make the environmental victim a special category of victim whose needs cannot be adequately met by the present systems of recourse.

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[11] See, supra, Chapter 3 at 120.

With these considerations in mind, this study will now address the main problems of environmental victims by forming a series of questions and answers directed at the core issues. The approaches to the problems by Japanese and American jurisdictions, as well as certain of Swaigen's suggestions, will be utilized, where feasible, to provide possible improvements to the methods of compensation.

B:

(a) Who should be eligible for compensation?

This question is probably the most important one, since all subsequent questions revolve around the issue of who might qualify for compensation under any proposed scheme. In the Japanese approach to this question, it will be remembered that a two tier system of compensation was enacted. This was done primarily to accommodate the fact that (in their major pollution cases) some victims lived in close proximity to the site of the pollution, whilst others were some distance from the source. Later, as the scheme was developed, it was decided that the two-tier system should be applied to those victims who suffered injury through a particular type of polluter, either mobile, stationary, or from a "prescribed facility".[12]

First, one must decide if all victims are going to be treated equally, regardless of the source of the pollutant or the type of the pollutant. In this study, since we are restricting the victims to those who suffer as the result of the commission of an environmental offence, this fact should be the primary consideration. If an offence has been perpetrated that is prohibited by statute, and as a result of that offence a victim is created, then this must be the first prerequisite for qualification to be considered for compensation. We are dealing, therefore, with victims of statutory environmental offences, regardless of where the victim or the polluter are located.

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[12] See supra, Chapter 4, note 21 p.154 and accompanying text.

The statutory provisions dealing with offences in the C.E.P.A. (which, for the purposes of simplification, this study is using as a model statute) are contained in sections 111 to 137. The most relevant of these sections for the identification of victims are s.115(1)(b)and ss.(2).[13] Both of these sections deal with offences caused by any contravention that results in the risk of death or harm to any person. However, such contravention must be wanton, reckless, or criminally negligent. In most provincial legislation, there is no corresponding section to the C.E.P.A. s.115, but the defence of due diligence is available to those charged with contravention of almost all the offence sections contained in the provincial statutes.[14]

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[13] See, Canadian Environmental Protection Act, R.S.C. 1985, c. 16 (4th Supp.) s.115.(1) Every person who,in contravention of this Act,

(b) shows wanton or reckless disregard for the lives or safety of other persons and thereby causes a risk of death or harm to another person,

is guilty of an indictable offence and is liable to a fine or to imprisonment for a term not exceeding five years or both.

(2) Every person who, in contravention of this Act, shows wanton or reckless disregard for the lives or safety of other persons and thereby causes death or bodily harm to another person is subject to prosecution and punishment under section 203 or 204 of the Criminal Code.

This raises the issue of whether victims should be compensated if the offender is either found not guilty of the offence charged under a statute, or is successful in using a defence provided for in a statute. Another eventuality would be where no defendant can be found to prosecute, even though an offence has been committed. In these circumstances the question of who should be compensated assumes the complexities encountered by other jurisdictions, yet tentative solutions have been suggested which could possibly be implemented in any new Canadian scheme.

First let us take the "simple" situation wherein an offender is charged under the statute, found guilty, convicted and sentenced. This would be the easiest scenario for justifying the proposed compensation of victims, provided they can establish the following facts: first, that an offence has been committed under the Act; second, that the victim was exposed to the health hazard created by the offence; and third, that as a result of the exposure, the victim suffered personal injury, sickness or disease.

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[14] See for example, Alberta Environmental Protection and Enhancement Act, S.A. 1992, c.E-13.3 s.215 "No person shall be convicted of an offence under section 59,64,72,73,76,97(2),98(2),99(1)or(2),100,101,122,141,142,148, 150,156,162,163,166,179,182,199,213(b), (c),(e), (g), or (i) or 237 if that person establishes on a balance of probabilities that he took all reasonable steps to prevent its commission."

It is the "connecting or causal" element of these requirements that create difficulty for a claimant in even this simple scenario. The first problem that has to be dealt with in this (and all subsequent more complex situations) is one of "causation". The claimant must "show" or "prove", that the illegally discharged substance was responsible for his or her injuries. As we already know, the standard of proof in tort law is on a "balance of probabilities" which, although not as stringent as the criminal standard, nevertheless creates significant problems for the environmental victim. This problem of causation is a major problem in tort litigation, but under a compensation scheme should be approached with flexibility. This issue will be discussed in detail shortly.[15]

Before leaving the eligibility problem, it is necessary to address a more complex situation. Where a defendant is either found not guilty of an environmental offence, or cannot be identified as the perpetrator of the offence that caused the victim harm, what requirements should an applicant for compensation be obliged to meet?

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[15] See infra, 214-222.

It is suggested that in these circumstances, an equitable solution would be found by following Crimes Compensation criteria, where no accused is found or convicted. As long as the victim can demonstrate that a criminal act of violence (listed in the Schedule to the Act) has been committed, from which injuries resulted to the person of the victim, a victim may make an application for compensation. Victims of environmental offences should be considered eligible for compensation in similar circumstances. The fact that a statutory standard has been violated, the victim was exposed to the health hazard, and the substance could possibly have caused the victim's illness, should be enough evidence to determine the victim's eligibility for consideration for compensation under the proposed scheme. Compensation in this event, could be provided from special reserve funds set aside for such contingencies (where there is no possibility of retrieving damages because of an unknown perpetrator).

In order to satisfy this initial problem of proof of causation, the approach of the Japanese and American study groups could be utilized in formulating a Canadian scheme of compensation for environmental victims. In other words, the legislation should contain a primary provision (as one of the grounds of eligibility for compensation) that as long as the claimant can show through accepted principles of science (such as an epidemiological study)[16] that it is possible that an offence caused the harm or injury to the claimant, this would be sufficient grounds for establishing a prima facie basis for consideration for compensation. It is in these circumstances, where causation is indefinite or unclear, that (for the purpose of qualifying or proving causation) the claimant under any proposed compensation scheme should be able to be eligible for consideration by attaining a less onerous standard of proof than that required in tort litigation. However, the problem persists (as is evident in current crimes compensation schemes) where the injury must be a "direct" result of an offence. This returns us to the causation issue.

(b) What is the best way to deal with the problem of causation in an environmental compensation scheme?

Factual causation or the need to establish a causal connection between the commission of an offence and the resulting injury is at the heart of corrective justice.[17] The search for causation in environmental offences may often be reduced to an attempt to find a primary or sole cause, but in many situations the consequences of injury, sickness or disease can be brought about by many contributing causative factors. In their discussion of multiple causation resulting in personal injuries, Professors Cooper-Stephenson and Saunders point out that a search for cause is not necessarily a search for sole cause, and every consequence can be the result of the interaction of many conditions that bring about certain results.[18]

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[16] See, M. Dore, " A Commentary On the Use of Epidemiological Evidence in Demonstrating Cause-In-Fact", (1983) 7 Harvard Environmental Law Rev. 429 at 432: " Epidemiologists can, however, assess the likelihood that a correlation indicates a cause-and-effect relationship."

[17] K.D.Cooper-Stephenson, Charter Damages Claims (Toronto: Carswell, 1990) at 250.

One approach to this problem would be to allow a claimant for compensation to show that the defendant produced, transported or disposed of a pollutant, dangerous to human health. The proof that the pollutant was dangerous or posed a hazard to health could be satisfied if it were shown to be a substance already controlled by statute. However, it could also be a substance included in a Toxic Substance List, prepared by a scientific panel.

It has been noted already in this study that a scientific panel may cause more problems than it might solve in the area of tort litigation.[19] The main problem is that any "expert opinion" is open to criticism and contradiction by other scientific "experts" called on to testify by the opposing party in litigation. This develops into a battle of "opinions" and it is left for the "non-expert" judge or jury to decide as to which might be the most valid or worthy of belief. Obviously, this is not a satisfactory method of dealing with causation problems. Nevertheless, it is here suggested that such a panel could prove valuable in assisting claimants for compensation where such a panel's function is independent, consultative, and restricted to applications for environmental compensation for injuries, sickness or disease under the proposed statute.

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[18] K.D.Cooper-Stephenson & I.B. Saunders, Personal Injury Damages in Canada, (Toronto: Carswell, 1981), at 637-41.

[19] See supra, Chapter 4, at 176.

The panel could be formed along the lines suggested by the A.L.I. study group.[20] It might consist of a number of members from government and industry, or alternatively a group of independent academics, and have the following purposes. First, it could investigate and conduct scientific studies to establish any links between hazardous substances and illness or disease in humans. Such substances should be included in a Compendium of Toxic Substances, and be continuously up-dated. Second, it would act as an independent panel of reference, to which claimants for compensation could apply for a ruling or determination of the probability of their illness, injury, or disease having been caused by any of the substances recognized by the panel in its Toxic List. If the substance is not one included in the List, then the panel could conduct independent tests to determine whether it was a hazard to human health. Third, it could provide information at the federal, provincial, municipal, and industrial levels, as to what constitutes a hazardous substance and the effects such substances have on human health. Fourth, the panel could act as a classification Board in the assignment of risk factors to environmental enterprises, whether of low or high risk in nature. In other words, such a panel could be the panel of reference in such matters. However, its opinion would be instrumental in resolving controversy about any particular substance, only in matters connected with compensation claims under the proposed legislation. Its opinion would not be utilized in any court litigation, but would be restricted to identifying causal connection and other scientific matters relating to potential compensation under the proposed statute.

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[20] See, Vol II Enterprise Responsibility for Personal Injury: Reporter's Study 1991, P.Weiler Chief Reporter,(Philadelphia, American Law Institute, 1991) at 300.

Such a panel could obviate the expense that is now incurred by claimants where scientific "expert" opinions are required to bring an action in tort. The standard of proof of causation could also be rendered less onerous. If for example, the panel found a significant correlation between the applicant's illness and exposure to a specific substance or substances, then such a finding could allow the Board to proceed with an application without additional evidence.

Furthermore, the "probabilistic" [21] approach to causation could be utilized by the compensation Board. In this method of determining relative causation, the actual assessment of damages takes account of the percentage degree of responsibility of the actions of a defendant. If it is not possible to determine with certainty factual causation as to any one defendant, a probabilistic cause standard of proof could be used to resolve the issue of factual indeterminacy. This method was used in the U.S. case of Sindell v Abbott Laboratories,[22] in which a market share allocation of causal responsibility was used where none of the plaintiffs could show which of several defendants was the one that actually caused their injuries. This use of simple probability has been recommended by several Canadian legal scholars, who suggest that a percentage of damages proportionate to the likelihood of causal connection is appropriate in these situations.[23]

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[21] See, J. Fleming, "Probabilistic Causation in Tort Law: A Postcript", (1991) 70 Can. Bar. Rev. at 136 ... "where a polluter's responsibility for a particular disease or injury, in competition with other natural sources, can only be expressed in terms of statistical or epidemiological evidence short of 50:50,

An example given by one of these advocates is very appropriate to our hypothetical circumstances.[24] Pardy gives the example of Gifford Burgess who died before a claim could

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victims would mostly fail under the traditional standard."

[22] 607 P.2d 924 (Calif. S.C. 1980)

[23] See, D. Gerecke, " Risk Exposure as Injury: Alleviating the Injustice of Tort Causation Rules"(1990), 35 McGill L.J.797 at 837; J.G.Fleming, Probabilistic Causation in Tort Law" (1989), 68 Can. Bar. Rev. 661; B. Pardy, "Risk, Cause and Toxic Torts: A Theory for Standard of Proof" (1989),10 Adv.Q.277.

[24] See, B. Pardy, "Risk, Cause and Toxic Torts: A Theory For a Standard of Proof" (1989) 10 Adv.Q. 277.

proceed. Burgess played as a child in a creek behind his home in London, Ontario. In the fall of 1984 at the age of 31, he was taken to hospital with abdominal pains, and it was discovered that he was suffering from a malignant tumour of the spleen. In July 1984 the Ontario Ministry of the Environment revealed that polychlorinated biphenyls (PCBs) had been leaking (from the time when Burgess had played as a child) off the site of a Westinghouse plant in London, Ontario, and entering the creek. The question arises: what, if any, part did the PCBs play in causing his cancerous illness?

Pardy explains the difficulty in toxic tort claims as being twofold. The first problem is evidentiary; the plaintiff must establish the link between the disease and the illness. In the proposed model, this will be dealt with by the scientific panel. The second is the standard of proof, which in tort is on a "balance of probabilities". He describes it thus:[25]

> Traditionally, the plaintiff is required to prove causation on a balance of probabilities. If the chance of causation is over 50%, the plaintiff wins all recoverable damages. Should it be 49% or lower, he recovers nothing.

If we used the probabilistic model, as proposed, the result would be very different in the Burgess situation. The plaintiff in that case could introduce evidence showing the incidence of cancer in the area. If it were higher than other rates of cancer occurring in other sample environments that did not have the PCB problem, the ratio of the higher incidence could be used as the percentage of fault attributable to the defendant. In other words the plaintiff is relieved from having to establish cause by a margin greater than 50%.

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[25] Ibid. at 278.

Another Canadian legal scholar notes that in Janiak v Ippolito[26] the Supreme Court of Canada tentatively approved the probabilistic method of determining causation in the quantification of damages, where future possibilities are concerned.[27] Professor Gerecke concludes that it could be argued from this decision that probabilistic analysis logically extends to "future *and* existing losses."[28]

Regardless of these tort problems of evidentiary principles and standard of proof requirements, it is submitted that in any proposed scheme (the object of which is to make it easier for claimants to qualify for compensation) the probabilistic method of proof of causation should be used if necessary. It provides an equitable means of resolving the problem for both a claimant and a possible defendant. Such a process would enable the Board to find proportionate liability if, in the opinion of the science panel, the causation of the disease, injury or sickness were found attributable to more than one source.

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[26] [1985] 1 S.C.R. 146.

[27] Gerecke, supra, note 23 at 837.

[28] Ibid.

The suggested solution, in cases of proportionate causation offered by the A.L.I.,[29] deserves consideration for possible adoption into a Canadian compensation scheme. Where for example, the responsibility of a polluter is less than 50%, compensation could be provided based on the attributable fraction of causation, in cases where the epidemiological evidence was found to be "sound" or "mature" by the scientific panel. Moreover, by appointing members from independent sources, the decisions of the panel would be rendered without political consideration or pressure.

To provide evidence of responsibility, a claimant relying on epidemiological evidence could first show that a population was comparatively disease free before the incidence of pollution, or before an offence by an unknown perpetrator was committed. Second, the claimant could show that the increase in disease correlated to increased exposure to the pollution. Then, if these two elements (combined with the fact that clinical and experimental evidence did not contradict statistical inference of causality, and that in regions of low pollution there were low numbers of diseased persons) were successfully demonstrated, this should be sufficient proof to satisfy the causal connection for a claimant. Thus, the applicants would qualify for consideration for compensation by the proposed Board, having met the fundamental criteria of: the commission of an offence; the victim's exposure to the health hazard; and the personal injury suffered by the victim.

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[29] Vol II Enterprise Responsibility For Personal Injury, Reporter's Study, 1991, P.C. Weiler, Chief Reporter, 2 Vols. (Philadelphia, American Law Institute, 1991) at 375.

Where an applicant has satisfied the basic requirements of eligibility for compensation under the proposed scheme, it must then be decided what type of compensation an applicant should be entitled to. This will be addressed in the following section.

(c) What should environmental Victims be compensated for?

As we have seen from our examination of Crimes Compensation schemes in Canada, there are only certain categories of pecuniary and non-pecuniary losses that are compensable under those schemes. This restrictive approach has not produced a very satisfactory result for claimants. It is suggested that heads of damages under any proposed compensation scheme for environmental victims should be comprehensive enough to place the victim in a comparable financial position to that existing prior to the onset of injury, sickness or disease. At the same time, a compensation scheme should not over-compensate victims to a point where they become recipients of sums that are not justifiable or equitable.

In most compensation schemes, there are two basic categories of losses (pecuniary loss and non-pecuniary losses) from which to provide compensation to victims. When considering what losses should be payable to victims of environmental offences, the type of benefits that these categories encompass becomes important.

(d) Pecuniary Losses

The first category could include all those pecuniary heads of loss recommended by the Uniformity Commissioners of Canada in their proposals for uniform legislation in Canada regarding crimes compensation schemes.[30] The recommendations of the Uniformity Commissioners were practical and took into account the "basic" pecuniary losses usually sustained by victims of violence. A few comments and suggestions about these pecuniary heads of damages regarding their possible inclusion in any proposed environmental victim compensation scheme are appropriate. They included five areas of compensation as follows.

(i) Expenses actually and reasonably incurred or to be incurred as a result of the victim's injury or death.

These should include all expenses, whether past or projected at the time of claim. As to what "expenses" should be considered under this head of damages, arguably they should include such things as all medical expenses, dental expenses, funeral expenses, medication, prosthesis, optic and hearing aids, rehabilitation, nursing care, physiotherapy, chiropractic treatment, and psychological counselling. These are all common items of compensation under this head in most Canadian jurisdictions for crimes compensation.[31] There seems to be no reason to deny them to the environmental victim.

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[30] Proceedings of the Fifty-Second Annual Meeting of the Conference of Commissioners on Uniformity of Legislation in Canada, Conference of Commissioners [1970] 299 at 301.

(ii) Pecuniary loss or damages incurred by the victim as a result of total or partial disability affecting the victim's capacity for work.

Under this head, it is suggested that the Japanese approach is clear and effective. If victims are disabled as a result of injuries, they are paid a per cent of the national average monthly wage up to a maximum of 80% depending on the degree of disability.[32] The severity of the illness, disease or injury is the determining factor in deciding what amount of lost wages shall be recovered. This method of compensating for lost wages accomplishes two important ends. First, if the claimant is not severely injured, it discourages malingering, and provides incentive for the claimant to return to his or her employment as soon as possible. Second, for the seriously injured patient, it provides an approximate living allowance during the course of the illness, and eliminates the problem of deciding what the compensation should be for a victim who has not been working for a long period prior to the onset of the illness.

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[31] P. Burns, Criminal Injuries Compensation, 2nd ed.(Toronto: Butterworth's 1992) at 161.

[32] J.Gresser, K. Fujiura, & A. Morishma, Environmental Law in Japan (London: Cambridge Press, 1981), at 290.

(iii) Pecuniary loss or damages incurred by dependants as a result of the victim's death;

This third category of loss could be encompassed by a lump sum payment or periodic payments over a period of time based on several factors. The Japanese approach in this area is a realistic one, making payment to the surviving members of the family of the deceased victim for the purpose of reconstructing family life. The amount payable is based on approximately 70% of the deceased's wages. If the deceased was unemployed at the time of the onset of the illness or disease, then the amount of payment can be calculated, using the national wage earnings averages.

One of the problems in this area of dependent compensation, is deciding just who is a "dependent" of the deceased victim. This difficulty might well be overcome by a fairly flexible definition of "dependent" in the enabling legislation. For example, in the various Crimes Compensation statutes across Canada, dependents are not defined uniformly. In Alberta, a dependent can be a spouse, child or other relative of a deceased victim who was, in whole or in part, dependent on the income of the victim at the time of death and includes a child of the victim born after the victim's death.[33] On the other hand, the Ontario Act includes "spouse", "parent", "child", "brother and sister", and "any other relative of the victim", in its definition of dependent.[34] These differences could be rectified by using words such as (a dependent) "includes" rather than "means", and "any other person who in the Board's discretion might be considered as a "dependent", in the definition section of any statute for environmental victims. This would allow a Board greater scope to decide who should be considered as a dependent of a deceased victim. For example, additional benefits could be made payable to those persons who have responsibility for afflicted or diseased children who are dependent on them for support and care.

> (iv) other pecuniary loss or damages resulting from the victim's injury and any expense that, in the opinion of the Board, it is reasonable to incur, and
>
> (v) other pecuniary losses resulting from the victim's injury.

These residual categories have often been used by crimes compensation Boards as a method of paying benefits that would not fall under any of the previous heads of damage. Personal items lost or damaged, such as clothing and eyeglasses, are sometimes placed in these categories. For environmental victims, they perhaps could include such items as any special personal losses incurred if the offence caused damages to personal property concurrently with health injuries. Examples could include injuries to pets and plants, or decontamination of vehicles or clothing.

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[33] Criminal Injuries Compensation Act, R.S.A. 1980, c.C-33, s.1(1)(c)

[34] RSO 1980, c.82, s.1(c)

In addition to the foregoing loss categories, it is suggested that pecuniary loss should also include any damage to private property, or related losses, suffered by the victim or the victim's family. Where for example, because of the commission of an environmental offence, the victim has to surrender or vacate property, the fund should provide compensation for relocation, and any diminished value of the property or home of the victim. Although this might seem to place a heavy burden on a compensation scheme, it is an area that requires a specific remedy, due to the nature of some pollution offences that have the potential to render a dwelling uninhabitable.[35]

(e) Non-Pecuniary Losses

The second basic category of loss that any proposed environmental compensation scheme should include must be for non-pecuniary loss: intangibles such as pain and suffering, loss of amenities or loss of life expectancy. The British Columbia Board listed these heads of damage for inclusion as pecuniary losses in one of its crimes compensation reports.[36] The Yukon Act also includes pain and suffering in its pecuniary loss or damage category.[37] However, it is more realistic and traditional to include such losses in the non-pecuniary category of losses, since estimating a dollar value for loss of life expectancy is a subjective exercise, and can depend on the life style and situation of any one victim.

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[35] See supra, Chapter 3, note 76 and accompanying text.

[36] See, British Columbia Fourteenth Report, (1985) at 2.

Pain and suffering is often a contentious head of damage which is not included under some crimes compensation schemes in Canada[38], nor in the environmental victim's compensation schemes of foreign jurisdictions. The Japanese government excluded this as a head of damages in its Act both because it considered that such a loss could not be properly assessed, and also due to the pressure applied by industry to have it excluded.[39]

However, the number of American jurisdictions providing compensation under this head has increased over the last ten years. This is not to say that the U.S.A. has universally come to recognize and acknowledge pain and suffering as compensable, since the majority of American jurisdictions still do not permit awards for non-pecuniary damage.

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[37] R.S.Y. 1986 c.27 s4 (e) reads;" other pecuniary loss or damages including pain and suffering resulting from the victim's injury and any expense that, in the opinion of the board, it is reasonable to incur..."

[38] See, for example, R.S.M. 1987 c.C305, and R.S.Q. 1977 c.1-6 (the Manitoba and Quebec statutes) do not contain any provision for compensation regarding the pain and suffering of a victim of violent crime.

[39] Gresser, supra note 32, at 295.

However, in West Virginia, compensation is allowed for such intangibles as "sorrow" and "mental anguish" attributed to the death of a family member due to a crime of violence.[40] Delaware allows compensation for scarring and disfigurement, and mental suffering caused by an injury of a permanent nature.[41] Other states, such as Hawaii[42], Rhode Island[43], Tennessee,[44] and Utah,[45] award compensation for pain and suffering resulting from sexual offences. This type of suffering is also recognized in Great Britain, since the Board has expressed its willingness to consider applications for compensation arising out of acts of rape and other sexual offences both in respect of pain and suffering and shock.[46]

There are arguments against including damages for pain and suffering in compensation schemes. These arguments are usually based on two premises, the one pragmatic and the other philosophical. They have already been discussed in detail, and will be briefly reviewed here.[47] The first is that they are open to fraudulent claims, and it would be too difficult to assess quantum. The second is that it is not the purpose of such schemes to compensate under this head.[48] Professor Burns presents satisfactory arguments against these objections; he points out that the fraud argument is based on sheer speculation and that Boards are usually so constituted as to have persons well able to detect witnesses who are not credible in giving their evidence. Secondly, he shows that the courts in civil actions have been able to assess fairly accurately the quantum of damages for pain and suffering, and that their awards are generally equitable and fair. As to the philosophy of compensation schemes, Burns suggests that crimes compensation schemes have, perhaps unjustifiably, in some cases tried to follow industrial accidents compensation or workers compensation, which do not include pain and suffering as a compensable injury. He rightly points out that the injury suffered by victims of crime is much more psychologically damaging than injuries incurred in accidents at work.[49]

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[40] See, West Virginia Code c.14, article 2A s.14 (g).

[41] Delaware Code Annotated title 11 c.90, para 9005 (1).

[42] Hawaii Revised Statutes title 20 c.351, ss .33(4), 52(2).

[43] General Laws of Rhode Island title 12 c.25, s5(c).

[44] Tennessee Code Annotated title 29 c.13, s.107(2).

[45] Utah Code Annotated title 63, c.63, s11(12).

[46] See, Burns, supra note 31, at pp.147-148.

It is this writer's opinion that pain and suffering must be included as a head of loss under any environmental compensation scheme, since the pain and suffering of such victims is often prolonged and severe compared to that of a victim of violence against the person. The nature of the diseases that can be caused by sources of pollution would make it absolutely necessary to include this head of loss. Pain and suffering is a recognized head of damages at common law and its main purpose is to acknowledge the plight of the victim in a monetary manner. The only restriction that might apply would be to cap the amount awardable thereunder at some reasonable maximum. Limiting the sum payable under this head would ensure that the fund would not be drained completely in those cases where, for example, an enormous amount of money could be justifiably paid to victims who might have suffered horrendous physical or mental diseases as a result of their exposure to the pollution.[50]

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[47] See, Burns supra, Chapter 3, p.136 note 92 and accompanying text.

[48] Ibid. Burns at 151.

[49] Ibid. Burns at 155.

The heads of damages payable to victims of environmental offences under the proposed scheme of compensation are not too different from those payable to victims of violence under crimes compensation schemes. When comparing crimes compensation and environmental regimes, the major areas of difference would include matters connected with the flexibility and discretion of the Board in deciding whether compensation should be awarded. Special consideration would be given certain factors, such as:

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[50] Examples of some serious diseases that can result from pollution, are given in Appendices "A" and "B".

causation and probability; the use of special scientific panels to assist in providing epidemiological evidence; the updating of information on the health hazards of toxic substances; additional heads of damage (such as property loss); an independent head of loss concerning pain and suffering; and finally, the time limits for bringing a claim, a matter to which we shall now turn.

(f) What should be the time limits for bringing a claim?

Under many of the Crimes Compensation schemes in Canada we have seen that the time for bringing a claim is generally within two years after the offence has been committed. It is suggested that, because of the nature of the injuries suffered by environmental victims, that the A.L.I. recommendations for extending statutes of limitations be adopted for claims under a proposed scheme. These included that the statute start running from the time the victim first manifests symptoms of a disease, or alternately, discovers that he or she is suffering from a disease that may have been caused by exposure to toxic waste. This is also the common law standard in Canada.

In order to make the scheme realistic in terms of the nature of environmental induced injuries, perhaps the position set out in the 1986 amendments to C.E.R.C.L.A. could be incorporated, whereby the effective date is when the plaintiff knew or reasonably should have known that the personal injury"...[was] caused or contributed to by the hazardous substance, pollutant or contaminant concerned".[51] This time limitation could also be extended by the Board, in its discretion, if there were exceptional circumstances in any particular case. For example, if the victim does not make an immediate connection with the exposure to the danger the time limit could be extended (as in the Burgess case cited above).[52] Such instances could be dealt with according to the circumstances and, if there is a delay in the connecting medical evidence, a Board should not be too rigid in invoking time limits. However, the circumstances for extending time periods would have to be quite exceptional, otherwise there would not be any reason to impose any time limitations.

(g) How should a Compensation Scheme for Victims of Environmental Offences be Funded?

Some current Canadian legislation specifically provides for environmental victim compensation, with regard to property loss, through statutory torts.[53] Rarely do statutes make provision for personal injury loss.[54] It would be a vast overall improvement if a statute were to be drawn up that encompassed the possibility of personal injury from pollution. Such a scheme could be funded by those industries or operations (either government or private) that carry a high risk of creating human health hazards.

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[51] 42 U.S.C. 9658(a) 91), and 9658 (b) (4) (A).

[52] See, supra, note 24 and accompanying text.

[53] See for example, CEPA which provides for Compensation for Loss of Property under s.131(1), and the bringing of a Civil cause of action, under s. 136 (1). The latter section speaks of "loss" or "damage", but does not refer to personal injury *per se*.

This type of funding is justified by asking the question who benefits from the creation of pollution, both directly and indirectly? Society as a whole may benefit from the consumption of products, but the manufactured residue of such goods or services may create contaminants dangerous to human health. It could be argued that the manufacture of goods and industrialization are facts of life, and that everyone must risk any adverse consequences of modern technology. Yet, as the "transaction"[55] costs of polluting, such as litigation, negotiation or regulation increase, the polluter profits disproportionately at the expense of others, and in the legal system these costs tend to favour the polluter.[56]

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[54] One notable exception is the Ontario "Spills Bill", being Part IX of the Environmental Protection Act R.S.O. 1980, c.141, which provides in s.87 ss(1) and (6) for liability by a defendant who causes "loss or damage." By definition this includes "personal injury."

[55] See, J. Trauberman, "Statutory Reform of "Toxic Torts": Relieving Legal, Scientific, and Economic Burdens on the Chemical Victim", (1983) 7 Harv. Env. Law Rev. 177 at 184, note 30; "Transaction costs can include the administrative, legal and other costs of regulatory and judicial decision making, obtaining necessary information, valuing harm, and negotiating economically desirable bargains."

However, it is not proposed in this study to deal with the economics of pollution and the cost/benefits ratio. Since we are looking at ways of improving compensation for victims of pollution, even if the fact that pollution "just exists" is accepted, fairness dictates that one must look to the sources of such pollution for any possible solution to the problem. In this regard, where a polluter makes direct profit from the production of goods and services, it is perhaps only fair to look to this most obvious source or creator of the hazard. Furthermore, one good reason for advocating that polluters pay risk "levies", is that they can be construed as a method of insurance. The tax or levy imposed would in all likelihood cost far less than the premiums payable under third party liability insurance policies, which can be extremely high or even unavailable.[57]

The "polluter pays" principle is now part and parcel of the philosophy of many pieces of federal and provincial legislation in Canada. As early as 1980, the Province of Ontario brought in legislation to make the owners or controllers of pollutants absolutely liable for spills of toxic substances into the environment.[58] No previous legislation in Ontario had attempted to specifically create civil liability for environmental impairment. Under the "Spills Bill" however, offenders were liable for "loss or damage", which was defined as including not only personal injury, loss of life and loss of enjoyment of property, but also pecuniary loss including loss of income.[59] Other provincial and federal legislation also implement the principle of making the polluter pay, but the Ontario Bill is the most explicit in defining personal injury losses as being a compensable part of the polluter's responsibilities.

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[56] Ibid.

[57] Swaigen, supra, note 5 at 18.

[58] The Ontario "Spills Bill", or Part IX of the Environmental Protection Act R.S.O. 1980, c.141

Further examples can be seen in Quebec's adoption of Bill 65 in 1990, which amended the Environmental Quality Act.[60] The Bill attributes the responsibility for damages to the perpetrator of environmental pollution. It also forces the offender to pay decontamination and restoration costs of environmentally damaged sites. More recently, Alberta included many provisions in its Environmental Protection and Enhancement Act that endorse the polluter pays principle, especially in connection with enforcement orders.[61] Federal legislation in the C.E.P.A. provides for the recovery of costs and expenses relating to the clean up of substances released into the environment in contravention of regulations under the Act.[62] The polluter pays principle is thus endorsed by Canadian legislation in relation to property damages and clean up costs but, except for Ontario's Spills Bill[63], does not generally compensate for personal injuries to victims.[64]

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[59] Ibid s.87(1) & (6); For a detailed discussion of this legislation see, D. Estrin, Handle with Caution, Liability in the Production, Transportation and Disposal of Dangerous Substances (Toronto: Carswell 1986), at pp.186-219.

[60] Environmental Quality Act, R.S.Q. 1977, C.Q-2; Environmental Quality Amendment Act, S.Q. 1990, c.26.

[61] See, Alberta Environmental and Enhancement Act, S.A. 1992, c.E-13.3., s.204

As in Japan, where polluters pay the entire costs of victim assistance,[65] it is suggested for Canada that some form of financing which allocates costs to those enterprises responsible for creating pollution should be favoured over general public sector funding. An operational fee representing the degree of risk generated by hazardous industrial, agricultural, governmental or private undertakings could be used as a starting point to obtain funds. Several American commentators have suggested that such an approach is quite feasible.[66] Other sources of funding that have been recommended include effluent or emission charges and feedstock taxes.[67] It is pointed out, however, that these sources are difficult to administer and to assess, because of the uncertainty of harm likely to result from different levels of pollution from some types of effluents and emissions.[68]

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[62] Canadian Environmental Protection Act, R.S.C. 1985, c.16 (4th Supp.) s.60.

[63] Supra, note 58.

[64] See, supra, Chapter 2 note 115 and accompanying text.

[65] Gresser, supra note 32, at 290.

[66] See W.R.Ginsberg & L.Weiss," Common Law Liability for Toxic Torts: A Phantom Remedy," (1981) 9 Hofstra L. Rev. 859 at 932-939.

There are other problems with imposing an appropriate risk fee or operational fee upon any industrial, agricultural or other polluting source. It is difficult to assess the risk to human health of each hazardous substance with any degree of certainty, since "scientific uncertainty pervades the study of toxic pollution".[69] To counter this problem, it is suggested that a flat fee be imposed, unilaterally, on two levels of environmentally hazardous operations, that could be classified as either being high or low risk enterprises. This would eliminate the need for percentage ratios for each environmental health hazard created whether by chemical, toxic, effluent, emission or other sources.

The categories of risk, low or high, of any operation could be initially decided by the science panel created under the statute, and the substances being handled by such operations could be listed in accordance with the classification of the Hazardous Substances List. The categorization of risks as being either "low" or "high", would entail consideration of several factors by the science panel. "Low" risk operations, for example, might include situations where there were frequent risks with minor side effects. Conversely, low risk could also include operations that had a low frequency of risk but with potentially severe effects, such as a nuclear power plant. On the other hand, a substance may be relatively harmless if exposure to it is limited, but could be the cause of serious illness in the case of repeated exposure. Hence, the total risk factor of any environmentally hazardous enterprise would have to be assessed by taking into account other variables, such as the safety precautions in place, the safety record of the operation, the nature of the manufacturing process, and the location of the plant or factory.

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[67] J. Trauberman, Statutory Reform of "Toxic Torts": Relieving Legal, Scientific, and Economic Burdens on the Chemical Victim", [1983] 7 Harvard Env. L. Rev.177 at 240-1.

[68] Ibid. at 241.

[69] Ibid.

In summary then, the primary purpose of the Fund would be to compensate victims of environmental offences. Since the risk is created by certain types of pollutants and polluters, it would seem fair to utilize the "polluter pays" principle by adding a "risk fee" to the cost of hazardous operations. The fee could be assessed in accordance with scientific calculations of relatively high or low risk factors, and be collected annually as a cost of engaging in risk-related environmental enterprises. This brings us to the final question of how such a Fund should be administered, and by whom?

(h) How Should an Environmental Personal Injury Compensation Fund be Administered?

The administration of a compensation Fund involves four main issues: the collecting of the risk fees, the disbursement of the funds as compensation, the administrative costs of the Board and relevant science panel, and the subrogation of the Fund to any monies collected from environmental offenders. It is proposed to deal with each issue in turn.

(i) Collecting Fees for the Fund

This task could be done by levying on existing operations a hazard or risk fee, determined by the science panel. The fee could be collected annually or monthly, depending on the option elected by the company or industry involved. New operations that have not been designated a risk of high or low category would submit applications to the administrative department which would pass the particulars of the operation on to the science panel for classification.

The fee schedule could be revised for all hazardous environmental enterprises every two years or as often as deemed necessary. Companies could apply for risk re-classification after a set period of perhaps two years. This could be permitted if their operations showed a reduction in health risks due, for example, to the implementation of equipment designed to reduce emissions or effluent, or by demonstrating that the company's safety record or incidence of offences was negligible. As a further incentive, if an operation could obtain and afford to purchase hazard risk insurance as an added precaution against liability, its premiums could be correspondingly lower if its record of safety was intact. On the matter of hazardous substance insurance, Professor Katzman suggests that a technical and comprehensive analysis of risks posed by hazardous chemicals, for example, would be too difficult and contain too many variables for insurance companies to calculate. He argues, justifiably, that insurers would be better off to insure against catastrophes -sudden large scale accidents- rather than insuring against isolated occurrences that may have latent effects.[70] Admittedly, some companies might be paying twice for coverage, but one might use the analogy of the person who obtains extra liability insurance above the minimum required amount in a motor vehicle policy. In this way, those Canadian environmental operators who could afford or manage to obtain private insurance could protect themselves against large losses. By paying a tax levy to the Fund they could also protect themselves against personal injury claims from individuals seeking compensation from the Fund unless, of course, their conduct constituted an environmental offence and compensation was subject to subrogation by the Board.

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[70] Book Review of Chemical Catastrophes: Regulating Environment Risk Through Pollution Liability Insurance by M.T. Katzman,(1986) 10 Harvard Env. Law Rev. 564

In the U.S., this type of fee collection from hazardous operations was proposed under C.E.R.C.L.A.[71] Under that statute, the hazard fee was aimed at the following types of substances:(1) those that were either inherently hazardous;(2) hazardous if released in certain quantities;(3) hazardous wastes generated in the production and manufacturing process; and (4) substances capable in one or more forms of increasing the hazardous potential of other substances.

As a result of these proposals, a Hazardous Substance Response Trust Fund was set up under s.221 of the statute,[72] and revenue for the Fund was obtained by levying taxes on petroleum companies and chemical feedstock operations. This section was repealed by the Superfund legislation under S.A.R.A.,[73] and new provisions established which included not only the original sources of revenue under C.E.R.C.L.A., but also added two new taxes[74]. The first was a tax on imported substances, and the second was an overall corporate tax on corporations earning in excess of $2,000,000.00

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[71] See, s211(a) 26 U.S.C. 4611-4682 (Supp.V 1981).

[72] 42 U.S.C.A. 9631.

[73] Superfund Amendments and Reauthorization Act (SARA) Pub. Law No. 99-499, 100 Stat.1613 (1986)

[74] (SARA) 517 (a) 26 U.S.C.A. 4671-4672.

dollars profit. (This latter provision proved to be a very controversial tax, and was one of the reasons why the Reagan administration threatened to veto S.A.R.A.)[75]

In Canada the science panel could draw from the expertise of its members to develop its own criteria for the designation of what constituted a hazardous substance or operation. It could then decide what type of tax or levy should be imposed on operations with the potential to generate a particular class of health hazard.

(ii) The distribution of funds as compensation

Compensation for victims of environmental offences should be paid for death, total disability, partial disability, pecuniary losses and non-pecuniary losses, including pain and suffering. Each of these categories of loss could have a limit as to the amount and the time period over which benefits under the scheme may be payable. A limit on the time and the amounts payable under the different heads of compensation ensures that there would always be sufficient funds to draw on to compensate victims and to operate the scheme. If no limits are set, then it may well be that in the event of a disaster the fund could quickly be exhausted.

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[75] See, "An Annotated Legislative History of the Superfund Amendments and Reauthorization Act (SARA)", (1986) 16 Envtl.L.Rep 10360; also, B.F. Whitman, Superfund Law and Practice: A Handbook on the Comprehensive Environmental Response and Liability Act and Cleanup Laws of New Jersey (Pennsylvania: American Law Institute, 1991) at 262.

If total or partial disability occurs as the result of a disease (the etiology and causal connection having been established to the satisfaction of the Board) disability payments should last for as long as the victim is totally or partially disabled to a maximum number of years. The rate of benefits could be calculated as in Japan, by using as a base a percentage of the national average wage for the period of years immediately preceding the onset of disability.

Payment for pain and suffering could be made as a one time lump sum payment, within a maximum dollar range, depending on the severity and length of the illness, or disease incurred by the victim. The limit in this case could be comparable to awards for similar injuries awarded by the courts in tort cases, in order to allow meaningful compensation to the victim, and to keep the dollar amounts within reasonable limits. Such particulars as are required by the board to determine the amount to be awarded would be established by a medical examination and reports about the victim by an independent medical authority.

Compensation for the death of the victim could be paid to the spouse for life or until remarriage, and to the surviving children until they reach the age of eighteen years or until twenty five if attending a full-time educational institute. This would be in keeping with the provisions of crimes compensation schemes which award this type of compensation to dependants where the victim is killed as the result of a crime. Medical expenses should also be paid to victims, for any costs not covered by a victim's health care insurance.

(iii) Administrative Expenses of Operating the Fund

These costs would include such items as professional fees to the members of the Science Panel, members of the Board, and the salaries of office administrative staff. To keep such costs to a minimum, the Board should function on an "as required" basis, so that salaries or professional fees are paid on an hourly basis for work performed. If the scheme were to be a national one, a federal administrative centre could deal with all claimant's applications, and regionally appointed members could sit on an ad hoc basis in each province to adjudicate on the eligibility of claims.

(iv) Subrogation of Claims to the Fund

Where a claimant is injured as a result of an environmental offence, and a defendant is found guilty of the said offence, then the Fund should be subrogated to the rights of the injured individual. This would include all rights of action, claims for damages, and losses under the Act that were paid to the victim from the Fund. Thus, in order to keep the fund solvent, it is suggested that where the claimant is paid losses from the fund, then the Fund should be entitled to sue a convicted offender for all Fund expenses incurred in pursuing the victim's claim as well as any monies paid to the victim from the Fund.

The foregoing suggestions touch on some of the major issues that must be considered in the drafting of compensatory legislation. However, they are certainly not a comprehensive list of all the requirements of a compensation scheme designed primarily to make it easier for environmental victims to claim for losses. Hence, the purpose and provisions of any draft Bill should now be examined.

(i) The purpose of a draft Bill for environmental victims: What provisions should it include?

(i) Purpose

Any scheme of compensation should be optional for the victims, so that they may choose to pursue a tort action if preferred. If however, having made the choice to sue privately, it becomes apparent that a defendant is insolvent, or does not carry additional liability insurance, they could discontinue their action and make a claim to the Board for compensation. However, once they do decide to claim statutory relief under the Act, then all legal rights of recourse should be subrogated to the Fund.

The draft Bill would have as its main object the compensation of victims of environmental offences, wherever encountered in Canada. It should provide the basis for legislation at the provincial or federal level, with the latter a preferable goal, so that regional departments of the federal Board could deal with local claims. Authority to deal with any claims connected with provincial offences, or provincial operations, could be referred to the Board by agreement with the Provinces and vice-versa[76].

A draft Bill should attempt to place the victims of environmental offences in a recognizable category, so that their needs might be met without undue delay, and to provide a modicum of certainty as to financial compensation for their injuries. Another important purpose of the Bill would be to provide a reliable source of compensation by the establishment of a Fund, funded through the imposition of a hazard fee on environmental operations that constitute a risk to health. It may not be the ultimate solution to this problem, but at least it should be a possible means of dealing with a situation for which there is presently no adequate remedy. If a victim feels there is an opportunity to receive "better" compensation by litigation through the tort system, or other means, that option would still remain open. The possible provisions that should be included in any draft Bill will now be set out. [77]

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[76] See, M. Rankin "Environmental Regulation and the Changing Canadian Constitutional Landscape", and L.B. Huestis, "Enforcement of Environmental Law in Canada, in Environmental Law and Business in Canada, G.Thompson, M.L. McConnell & L. Huestis eds. (Aurora, Ontario: Canada Law Book, 1993),at pp 31-69 and pp. 243-274 respectively, for a detailed discussion of how the Canadian Constitution affects environmental legislation and enforcement.

[77] For a good example of a model statute in this area, See, J. Tauberman, "Compensating Victims of Toxic Substances Pollution: A Proposed Model Statute," [1983] 7 Harvard Env. L. Rev. 250-296.

(ii) Provisions

The interpretation section of the Bill should include definitions of important consequence, such as, for example, "dependants", "disability", "disease" and what constitutes an "environmental offence". Other important items in this section would be the meaning of "sickness, "disease" or "injury", "toxic substance" and "victim". A clear unambiguous denotation of the items in the interpretation section of any Bill is most desirable and of assistance to all seeking clarity in administering the statute.

The manner of establishing the Board and science panel should be proclaimed, with their purposes, procedures and authority clearly delineated. Additionally, the number of members and constitution of the Board and Science Panel should be defined and the academic or other qualifications necessary to be a member established. The procedural process of how the Board and Panel deal with a claim under the Bill should be stated, as well as the matters that may be taken into consideration for determining the eligibility of a claim. The standard of proof necessary should be indicated in the Bill; the method to be used by the Panel in conjunction with the Board in determining the degree of proof and what evidence is necessary to satisfy this requirement should also be stated.

The Bill should outline, in as much detail as possible, the types of benefits payable to a qualified claimant. These should include the pecuniary and non-pecuniary losses for which a victim may be compensated, and also to whom such benefits might be payable in the event of the death of the victim. The limits on the amount or duration of compensation under different heads of damages should also be provided. There should be a procedure for a claimant to follow when appealing any decision of the Board. An impartial Appeals committee should be established, and any decisions open to judicial review.

A Toxic Substance List and a Hazard Fee Schedule should be contained in the Bill. The manner in which these items are to be established and maintained should form part of the main body of the legislation. The Bill should also make provisions for the Lieutenant Governor in Council, or the Governor General, as the case may be, to make Regulations from time to time, to draw up and amend such Schedules and Lists.

A definite period must be established setting the time limitations for the bringing of a claim, although the Bill could provide some degree of flexibility in this regard. The period should allow for the bringing of a claim from the time of "discovery" of the disease by a claimant. Discretion could be given to the Board to extend a time period, but only in clearly exceptional circumstances.

Other clauses that the draft Bill should include would be: the subrogation rights of the Board, the administration of the Fund, the procedure for the assessment of environmental risk hazard operations, and the procedure to be followed in the conduct of a hearing. These suggestions should form the basis of a fairly comprehensive Bill that would address some of the important compensation problems presently facing environmental victims.

SUMMARY AND CONCLUSION:

The proposals contained in this chapter stem from what is perceived as a partial vacuum in the legal system and in Canadian society. The recognition and provision of adequate remedies for victims of pollution has been largely overlooked. It is the writer's conclusion that this oversight could be rectified by the implementation of a scheme of compensation directed specifically at those victims suffering personal injuries as the result of environmental offences.

We can draw from the experience of foreign jurisdictions and utilize their suggestions where appropriate in a Canadian scheme. The more significant of these provisions that the writer would include in any draft Bill include: the establishment of an Environmental Compensation Board, the creation of a Science Panel, the establishment of a Hazardous Substance Fund, the imposition of a Hazard Fee on environmental operations that create health risks, the minimization of the standard of proof,

proof of causation through epidemiological studies and statistical evidence, the probabilistic approach to liability, the extension of time limitations and use of the "discovery" rules, the polluter pays principle, the right of subrogation by the Board, payment for pain and suffering, and payment of both pecuniary and non-pecuniary losses. An example of how these provisions would assist victims will illustrate how the draft Bill would operate.

In Chapter 2 we examined the course of the McCann case.[78] You will recall in that case, an action was commenced for injuries allegedly suffered as the result of a spill or spills of toxic substances. If one compares it to what might take place under the model Bill (except for the retroactivity problem) there is a marked difference in result. A claimant could have submitted evidence to establish that there may have been a probabilistic factor involved that could result in some degree of compensation being awarded. It would not be necessary to prove that his injury was solely a direct result of the spill. Furthermore, under the proposed bill, there would be an opportunity to submit medical evidence to the Science Panel, to show that the allergic reaction could have "possibly" been caused by the spills. The issue of whether the victim was entitled to compensation could have been made known to the claimant at very little cost by the Board, and the legal costs involved in appealing a decision through two appeal courts avoided.

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[78] Supra, Chapter 2 note 115 and accompanying text.

The proposed Bill would assist victims like McCann to bring their claims for compensation to the Board quickly and without undue psychological or financial duress. Admittedly, the sum the claimant was seeking in this case appears to be rather excessive (the case report does not indicate the severity of the allergic reaction suffered by McCann); however, with a reasonable maximum limit on damages as contained in the Bill, a claimant would have had the opportunity of deciding to proceed with a claim for compensation for fewer dollars, or take the chance of obtaining "all or nothing" in the litigation process.

An environmental compensation scheme under the draft Bill circumvents the necessity of victims having to commence an expensive law suit. Furthermore a provision in the Bill to prohibit the bringing of an civil action if an application is successful would prevent the "testing of the waters" by claimants. Once an election has been made to make application for compensation, a claimant who obtained a "favourable" decision from the Board or Science Panel, could not then decide to "go for broke", drop the claim against the Fund, and then commence a civil action. (Of course if the decision is "unfavourable", a claimant has the option to then proceed with a claim in tort if desired). The Bill also resolves the problem of deciding which defendant to sue.

In the McCann case, it appears one of the main problems encountered was that there was no definite spill alleged to be the cause of the plaintiff's injuries, but rather a series of spills that occurred between 1977 to 1980. Obviously offences had been committed and, under the Bill, this would be sufficient evidence for a claim to proceed.

Thus, the draft Bill clearly assists victims such as McCann in many ways including: a diminished standard of proof; avoiding the costs in establishing the validity or non-validity of the claim that are incurred by appealing to different levels of courts; the lack of needing to prove that injuries suffered were a "direct" result of a spill; and, the knowledge that a claimant is more easily "recognized" as a member of an identifiable class that can be eligible for compensation benefits.

The draft Bill would include the provisions that the writer considers the most practical and beneficial for environmental victims. The lobbying and attempts at blocking this sort of legislation by industry in the U.S.A.(at the time of the passing of CERCLA) is evidence of how strongly opposed polluters can be to the compensation of potential environmental victims. However, the Japanese situation illustrates that something constructive can be done to assist this type of victim. Clearly it is time for government in Canada to remedy this glaring defect in the law.

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Appendix "A"

Sulphur dioxide:

One of the most important families of air pollutants with respect to human health is the sulphur oxide group, including sulphur dioxide and trioxide, together with their acids and salts.[130] Sulphur dioxide is emitted from many sources and is produced any time sulphur contaminated producing fuels are burned, especially coal; industrial processes are the largest source of sulphur dioxide releases in Canada.[131] Epidemiological studies in Canada have linked sulphur dioxide to impaired lung function, increased susceptibility to respiratory infection, and exacerbation of existing respiratory conditions such as asthma and bronchitis.[132] When sulphur dioxide is combined with oxygen and water in the atmosphere, sulphuric acid is formed, and exposure by humans to this acid can lead to reduced lung function and possible chronic lung disease.[133]

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[130] Potter, supra, note 3 at p.60.

[131] See "Industries the Price of a Lifestyle", in Canada, State of The Environment Report, supra, Chap. I note 16 at C. 14-5 Although sulphur dioxide emissions fell by almost 45% between 1979 and 1985, industrial processes were and remain, the largest source of sulphur dioxide releases in Canada. It is emitted from waste products in petroleum refining, pulp and paper manufacture and sulphide ore smelting. It is soluble, which means it is usually dissolved by mucus in people's throats and mouths before it reaches the lungs. However, it can be carried with airborne particles deep into the lungs, harming the tissue unprotected by mucus. Sulphur dioxide, and the related compounds, sulphur trioxide, and sulphuric acid aerosol, are known respiratory irritants.

[132] See, National Research Council, Canada, Epidemiology and Air Pollution, Prepared by the Commission for Life Sciences. (Washington, D.C.: National Academy Press, 1985).

Nitrogen Dioxide:

Nitrogen oxides are produced when fuel is burned at high temperatures. In Canada, the emissions of nitrogen oxides rose by over 40% during the period 1970 to 1985.[134] This increase is attributed to the number of cars and trucks in use on the highways, having increased by approximately 70% in that time frame.[135] Nitrogen dioxide[136] is formed by the oxidation of nitric oxide and when levels of this gas exceed the one-hour maximum tolerable limit prescribed by Canadian National Air Quality standards,then persons with asthma or bronchitis can experience increased airway sensitivity.[137] It is highly toxic in occupational situations, and persons suffering from respiratory afflictions have them aggravated when nitrogen dioxide exceeds tolerable levels.[138] Canadian studies have indicated that high levels of nitric oxide and nitrogen dioxide may effect the body's ability to ward off bacterial and viral infection.[139]

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[133] State of Canada's Environment, supra, note 16 at C.2-12. Studies conducted in the U.S.A. have also indicated that long term exposure of young children have been linked to increased incidence of respiratory disease such as bronchitis. On the positive side, tests of the presence of sulphur dioxide in the atmosphere at the three different levels of air quality, indicate that only levels at the very poor range (over the maximum acceptable) result in increasing sensitivity of patients with asthma or bronchitis.

[134] Sterling, supra, note 39 at 13.

[135] State of Canada's Environment, supra, note 16, at C.14-5. The major sources of this pollutant are from transportation vehicles and the combustion process used in electric-power plants and industrial boilers.

[136] M. Raizenne, R. Burnett et al., " Acute Lung Function Responses to Ambient Acid Aerosol Exposures in Children," (1989) 79 Environmental Health Perspectives, p.179-185. It has also been noted that children are extremely sensitive to the detrimental effects of chronic exposure to nitrogen oxides.

[137] Ibid.

Ground level Ozone:

In Canada, emissions of nitrogen oxides have a role as a precursor in ground level ozone.[140] This pollutant is formed by a complex series of reactions involving nitrogen oxides, volatile organic compounds (Vocs), and energy from sunlight. It is a member of a class of pollutants known as photo chemical oxidants.[141] Ozone at ground level is an oxidizing agent affecting the respiratory system, and exposure to high levels can do severe damage and reduce lung function, especially in children.[142] When certain conditions are present ozone concentrations at ground level can build up to harmful levels, and repeated short-term or acute exposure to levels of 100 parts per billion can cause lung damage in infants.[143] The majority of studies[144] that have reported on the adverse effects of ozone focus on the lung as the primary target organ, but ozone has been reported to produce a number of effects on other organ systems, such as the central nervous system.[145]

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[138] Environment Canada, National Urban Air Quality Trends, Report EPS7/UP/3/, (Ottawa: Environment Canada, 1990). U.S. studies have also indicated that if set ambient standards for (Nox) are exceeded, the result may be an acute bronchoconstrictive effect on people when exercising. See, Michael Gallo, Michael Gochfield, & Bernard Goldstein, "Biomedical Aspects of Environmental Toxicology," in Toxic Chemicals, Health and the Environment, Lester Lave and Arthur Upton, eds. (Baltimore: John Hopkins University Press, 1987), p.185. Another American epidemiological study shows that there is some evidence that nitrogen dioxide exposure may potentiate respiratory tract infections in humans. See, U.S. Environmental Protection Agency,Air Quality Criteria for Oxides of Nitrogen, EPA-600/8-82-026 (Washington, D.C.: EPA, 1982).

[139] A Vital Link, supra, note 38 at p.52

[140] State of Canada's Environment, supra, note 16 at C.12-18, "(Nox) is released primarily during the combustion of fossil fuels. Vocs are released during production, transport, storage and the combustion of petroleum fuels, from the various industrial processes, and from evaporation of solvents and organic chemicals." Ground level ozone levels declined in Canada during the 1980's, but have been on the rise since the beginning of the 1990's. Since it is a partial derivative of nitrogen dioxide and Vocs, its levels may fluctuate as the amounts of these gases vary. Both nitrogen oxide and VOCS emissions are projected to grow by about 6% between 1985 and the year 2005, since fossil fuels from the energy sector are the source of 95% of nitrogen dioxide and 60% of VOCS emissions."

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[141] Hillborn and Still, supra, note 25 at 19

[142] D.E. Griffith and J.L.Levin, " Respiratory Effects of Outdoor Air Pollution", (1989) 86 Post Graduate Medicine, p.111-116 and p.118.

[143] State of Canada's Environment, supra, note 16 at C.14-5.

[144] J.D.Hackney et al., " Effects of Ozone Exposure in Canadians and Southern Californians", (1977) 32 Arch. Environ. Health. p.110-116. A comparison was made on the biochemical and physiological effects of exposure to 0.37 ppm for two hours on a group of Canadians from an area of low levels of air pollution, with a group from Los Angeles, California, exposed to higher levels of pollution including ozone. Among the variables evaluated were erythrocyte fragility. The volunteers with no previous exposure to air pollution had a 34% to 53% increase in red blood cell fragility.

[145] Ibid. at 136. In humans, exposure to concentrations of ozone greater than 0.6 ppm, have been reported to result in lethargy and headaches. In the case of severe poisonings, these symptoms were accompanied by a dry cough. Ozone has also been

Carbon Monoxide:

Carbon monoxide is a colourless gas, with no odour, and is highly toxic. It is created when carbon-containing materials are burnt under conditions of insufficient oxygen.[146] Carbon monoxide combines with the blood haemoglobin to produce carboxyhemoglobin, resulting in reduced oxygen being transported to the blood.[147] Exposure to large quantities of this chemical can also cause severe brain damage since it reduces the amount of oxygen supplied to that part of the central nervous system.[148]

Suspended Particulates:

Suspended particulates include a wide variety of

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shown to have an adverse effect on a number of visual measurements. Volunteers exposed to concentrations as low as 0.2ppm, showed a decrease of visual acuity in the scoptic and mesopic ranges, and increase in peripheral vision and changes in the balance of extraocular muscles.

[146] State of Canada's Environment supra, note 16 at C.2-12. This compound is produced by any combustion system operating with a carbonaceous fuel, especially automobiles. Other important sources of carbon monoxide emissions are industrial, where fuel is burned to generate electricity. In Canada, emissions of carbon monoxide did not increase to any great degree between 1970 and 1985, but remained fairly constant through that period at approximately 10,000,000 tonnes of emissions per annum. During the period 1974-1989 carbon monoxide (peak eight-hour average) went from approximately 45% of the maximum acceptable level,to about 20% of that level.

[147] Ibid. Oxygen deficiency, with potentially fatal results, can occur at chronic exposure levels as low as 14ppm, or at exposure levels of about 5,000 ppm. It can affect motor skills and mental capacity at levels found in city air samples. People with cardiovascular problems, smokers and anemic individuals are at greatest risk during such emissions of carbon monoxide.

[148] Gallo et al. supra, note 138 at 198.

airborne substances that originate from such industrial activities as mining, quarrying, and pulp and paper operations. Motor vehicle emissions, thermal power plants, and incineration of industrial and municipal waste also contribute to the proliferation of suspended particulates in the ambient air.[149]

They may take either solid or liquid forms, but it is their size that is significant. The magnitude of the particles can influence the potential for causing health problems[150], since size is directly related to their ability to gain entry into human lungs and remain there.[151]

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[149] State of Canada's Environment, supra, note 16 at C.2-11

[150] D.V. Bates and R. Sizto, " Relationship Between Air Pollutant Levels and Hospital Admissions in Southern Ontario," (1983) 74 Canadian Journal of Pub. Health, p.117-122. They can aggravate existing lung and heart disease and are considered a "critical contaminant" when other air pollution measures are high. Particularly susceptible during such periods, are children, the elderly, asthmatics and smokers.

[151] Environment Canada, State of the Environment Report, (Ottawa: Supply and Services, 1991) p.27 Suspended particulates can also interfere with mucociliary clearance and other host defence mechanisms, morphological alteration, and mortality. Major health concerns that are associated with exposure to suspended particulates are the adverse effects on pulmonary function, and aggravation of existing pulmonary and cardiovascular diseases.

Appendix "B"

Lead:

In sufficient concentrations lead can pose a severe risk to human health, causing damage to the nervous, circulatory, urinary, gastrointestinal and reproductive systems. It can also lead to anemia, brain damage and loss of kidney function, and unfortunately children are particularly vulnerable to lead poisoning.[152]

Mercury:

Mercury attacks the central nervous system, and humans exposed to very low concentrations of this metal can be seriously injured.[153] In the well documented report on the Grassy Narrows and White Dog communities in northwestern Ontario , it was determined that because of the dumping of about 11 tons of mercury into the Wabigoon-English River system many of the residents had eaten mercury poisoned fish, thereby suffering a variety of health problems such as neurological damage. [154]

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[152] State of Canada's Environment, supra, note 16 at C.21-10.

[153] Canada-Manitoba Agreement on the study and monitoring of mercury in the Churchill River Diversion.Summary report 1987: (Ottawa: Environment Canada, 1987).

[154] Mercury pollution in the Wabigoon-English River system of northwestern Ontario, and possible remedial measures: Summary of the technical Report 1983 Canada - Ontario Steering Committee. (Ottawa: Environment Canada, 1983).See also:J.Donnan, Mercury Pollution in the Wabigoon-English River System: A Socio-Economic Assessment Of Remedial Measures,(Ontario: Ministry of Env.,1986).

Polychlorinated biphenyls,(PCBs):

These chemicals have been used in Canada since 1929 mainly as insulators and coolants in electrical transformers and capacitators. They are a group of isomers which differ from one another depending on the relative position of the chlorine atoms on the biphenyl frame and a small number of the isomers have toxicological properties.[155] They can enter large bodies of water if transported in the air. More than 90% of the PCBs in Lake Superior came from atmospheric deposits.[156] The disastrous effects they can have on human health is demonstrated in the mass poisoning incident of 1968 which occurred in Yusho, Japan. Cooking oil was contaminated with PCBs,and furans. Victims who had ingested the cooking oil suffered from various symptoms including chloracne, eye discharges, swelling of the upper eyelids, numbness of limbs, muscle spasms, chronic bronchitis and decreased birth weight and head circumference in offspring. Apparently there is also a possible link between long term high exposure to PCBs and liver cancer.[157] The manufacture and importation of PCBs has been banned in Canada since 1977, but because of their resistance to break down, they remain in the environment for many years, and thus remain a great source of concern as a possible source of danger to humans. Health and Welfare Canada continues to monitor PCB levels in water.[158]

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[155] W.M.J. Strachan, Polychlorinated Biphenyls(PCBs)- Fate and Effects in the Canadian Environment, Report EPS 4/HA/2 1988,(Ottawa: Environment Canada, 1988). See also: State of Canada's Environment, Supra, Note 14. in Glossary of Selected Terms XIX

[156] W.M.Strachan and S.J. Eisenreich Mass balancing of toxic chemicals in the Great Lakes: the role of atmospheric deposition. Appendix I from the Workshop on the estimation of atmospheric loadings of toxic chemicals to the Great Lakes basin, (Windsor: International Joint Commission, 1988).

Dioxins and furans:

These substances are dangerous contaminants to which people may be exposed as a result of industrial effluent. They have been declared toxic substances under the C.E.P.A.[159] The major source of dioxins and furans are commercial chemicals, incineration of substances containing chlorine, and accidental spills of PCBs which have a high content of furans.[160] These pollutants are often found downstream from pulp and paper mills which use as part of their manufacturing process chlorine bleaching. They are fat-soluble contaminants which pose a threat to humans and the aquatic food chain.

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[157] State of Canada's Environment, supra, note 16 at C. 21 -8

[158] R.C.Newbrook, Polychlorinated biphenyls: multimedia exposure analysis: Unpublished Report 1988(Ottawa: Health and Welfare Canada 1988).

[159] Canada Environmental Protection Act, S.C. 1988, c.22; SOR/92-267, Feb.1993

[160] M.J.Boddington, and R.C.Gilman, et al.,Polychlorinated dibenzodioxins and polychlorinated dibenzofurans.Canadian Environmental Protection Act Priority Substances List Assessment Report No.1. 1990,(Ottawa: Government of Canada 1990).

Some of the symptoms exhibited by persons exposed to high levels of dioxins and furans include impairment of the immune system, liver damage, chloracne, skin thickening and sensory and behavioral effects.[161] People in the town of Seveso, Italy, experienced mass exposure to dioxins and furans in 1976 from an explosion in a town chemical factory. People suffered from chloracne and it was reported that thousands of birds and small animals were killed.

A recent Canada-Ontario study [162] indicates that only about 4% of dioxins and furans ingested by adults come from the air, soil and water; it is nevertheless disturbing, because of their potential to cause detrimental health effects in very minute quantities.[163]

Polycyclic aromatic hydrocarbons (PAHS):

Some of these carcinogenic compounds, can be released into industrial effluent from used lubricating oils. Other sources include thermal power plants, coke ovens, sewage and wood smoke.[164] Benzene and benzene derivatives (of which 700,000 tons are produced in Canada each year) belong to the large family of PAHS.[165] Short term exposure to high concentrations of benzene can be lethal and it is also one of the irritants contained in smog.

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[161] State of Canada's Environment, supra, note 16 at C.21-9

[162] J.J. Ryan, " Blood and Adipose Tissue Levels of PCDDs/PCDFs Over Three Years in a Patient After Exposure to Polychlorinated Dioxins and Dibenzofurans",(1989) 18 (1-6) Chemosphere p.637-642: See also: B. Birmingham et al., "Multimedia exposure analysis for the Canadian population: detailed exposure estimation." (1989) 19 Chemosphere, 637.

[163] P.M.Mehrle et al. Toxicity and bioconcentration of 2,3,7,8-tetrachlorodibenzodioxin and 2,3,7,8-tetrachlorodibenzofuran in rainbow trout,(1988) 7(1)Environmental Toxicology and Chemistry. p.47-62. Mortality in rainbow trout, occurred at concentrations of the dioxin 2,3,7,8,-TCDD as low as 40 parts per quadrillion.

Pesticide:

This is a generic term used to describe a multitude of substances including herbicides,fungicides and insecticides. They are used to a large degree in Canada for forestry and agricultural applications, and also of course in urban centres as weed-killers.[166] The use in agriculture of certain types of pesticides has been discontinued because of severe neurological disorders observed in some agricultural workers who were using them in the course of their duties.[167]

By their very nature pesticides are harmful substances since they are designed to kill unwanted forms of life. If they enter a river course in large quantities the results could be disastrous for the aquatic chain and ultimately to humans. Human health hazards linked to pesticides include cancer, liver and kidney damage and testicular atrophy.[168]

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[164] P.G. Wells and S.J. Rolston, eds. Health of Our Oceans: a status report on Canadian marine environmental quality, (Ottawa: Environment Canada. 1991).

[165] State of Canada's Environment, supra, note 16 at C.18-15

[166] Ibid., at C.3-20

[167] Keller & Wilson, supra, note 88 at 58.

[168] Ibid. p.53-54